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Cover: Pentagon Renovation Program Manager W. Lee Evey (left) reviews progress on the Pentagon Metro Entrance work site with Fred Cobb, a member of the construction crew, October 2001.

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Pentagon Renovation Program

Expectations Are High—and the World is Watching

LESTER M. HUNKELE III • W. LEE EVEY

From the Editor

Four years ago, Lee Evey, Program Manager for the Pentagon Renovation Project, took on a project whose scope he could never have imagined at the time. Nor could he have imagined the events of Sept. 11 that destroyed so much of the four years of work he and his team poured into the Pentagon Renovation Project.

The article that follows was written well before the Sept. 11 unprecedented terrorist attacks against our nation. Most of the work completed in the Wedge 1 phase of the project was utterly destroyed—work that Evey and the members of his team had spent four years completing, at a cost of $258 million.

Facts are now emerging on how the renovations withstood the inferno that resulted when a hijacked airliner slammed into the Pentagon. Steel framing that had been added gave extra support to the concrete, holding up the Pentagon's outer ring for approximately 30 minutes before it finally collapsed. This time allowed many personnel on the 3rd, 4th, and 5th floors—directly above the area of impact—to escape their offices unharmed. Blast-resistant windows—at $10,000 apiece—limited razor-sharp flying glass; and Kevlar-like cloth, applied between steel beams, caught fragments that imploded.

While a significant portion of Wedge 1 is beyond repair, literally hundreds of people are working around the clock right now to make areas suitable for occupancy in the very near future. And although Wedge 1 suffered water damage that requires significant recovery and restoration efforts, many of the areas are salvageable after carpets and drywall are replaced.

Program Manager and the Defense Acquisition University do not consider this story overcome by events. Indeed, we believe it has a message for our readers—a message that those of us who work for the government would do well to remember. Here, it's a message DAU President Frank Anderson Jr., doesn't let us forget: *It's about making a difference.* And the Pentagon Renovation Program Team—in a place and time of history's choosing, where the day-to-day suddenly became the unthinkable—*truly made a difference.*

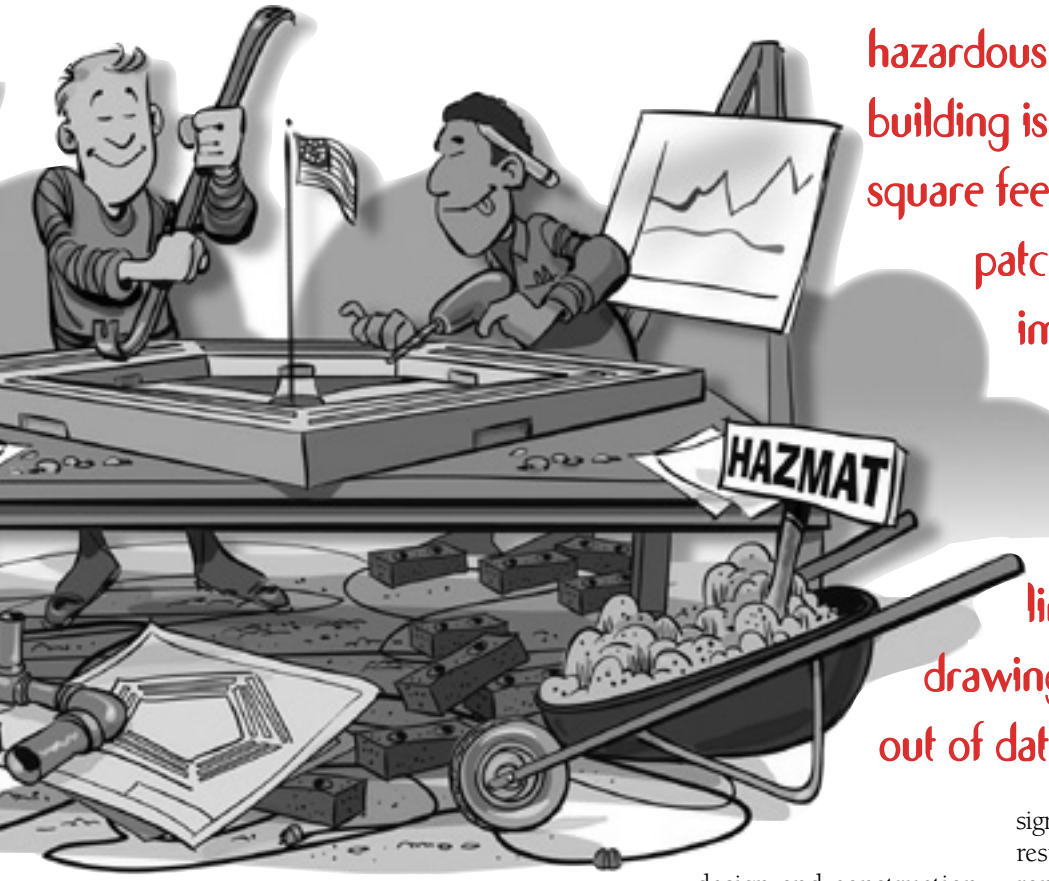
The Pentagon Renovation program—at $1.8 billion, the largest renovation project in the United States—is certainly a complex undertaking. The program includes: "swing space" for roughly 20 percent of the building's occupants; move planning and execution for those going to and from swing space; master planning, budgeting, and replacement of all supporting utility lines into the building; some new facilities on the exterior of the building; relocation of some facilities away from the building; and the renovation of the entire building—all while keeping it roughly 80 percent occupied and in operation.

Complications? Many...

Laden with asbestos, lead, and other hazardous materials, the basic building is 6½ million gross square feet. The utilities are a patchwork of successive improvements to the building for over 50 years, resulting in many abandoned lines, and as-built drawings that were long ago out of date.

The Metro subway that runs adjacent to the building and currently empties into the building, further complicates construction on the site of this historic structure. Additional complications are rights of way for many commercial utilities, and physical restraints due to multiple adjacent highways. The site includes an

***Hunkele** is a professional engineer and the Joint Venture Program Manager for the Pentagon Renovation Program. Joint Venture is the Renovation Program's Construction Management Support Agency. A government contract employee, he works for Daniel, Mann, Johnson and Mendenhall and 3D/International. **Evey** is the government program manager for the Pentagon Renovation Program. The figures in this article are notional, and were prepared by **Monte Ingram** (3D/I) and **Rafael Lopez** (DMJM) of the Pentagon Renovation Program.*



Laden with asbestos, lead, and other hazardous materials, the basic building is 6½ million gross square feet. The utilities are a patchwork of successive improvements to the building for over 50 years, resulting in many abandoned lines, and as-built drawings that were long ago out of date.

active heliport and fire station, as well as its own power plant. Finally, parts of the building simply must be kept in operation 24 hours a day, 7 days a week.

Obviously, scheduling is difficult because of the coordination required for utility outages, access, swing space leases, moving contractors, and the expectations of the 25,000 occupants. The renovation necessarily has to respond (and take a back seat) to real-life situations related to our national defense, and other emergent requirements. And time is money in the construction business. Keeping the program within budget and schedule constraints requires the timely information, coordination, and cooperation of many entities, from government agencies to contractors. Balancing cost, schedule, and quality has been challenging on a program so large, so complex, and influenced by so many—from Congress and the Administration, to the State and County governments, to the occupying agencies, to design and construction contractors and a host of suppliers.

Mired in Details

The problems encountered during the first years of the renovation process were not unlike those experienced by many agencies attempting occupied renovations. The program was oftentimes contentious as various entities seemed to work toward different goals. It was neither fun—nor very effective—mismanaging the expectations of many of the participants. For the owner attempting to exert "control," the program was both paper-intensive and staff-intensive. While the construction projects and program slipped increasingly behind schedule, at the same time the program began exceeding its budget. Even the size of the deficiency "punchlists" and the time to get them completed were indicators of the lack of sufficient quality.

Tenant changes and program changes alike were responsible for some of these problems, as were the contracting methodologies used. The low bid, design-bid-build strategies gave predictable results in a complex renovation environment. These problems then led to lack of confidence in the ability of the program to be managed, or to meet any date for moving tenants.

In essence the "control" of the project by the owner was after-the-fact oversight and reporting of events. The control mechanisms were not pro-active and did not provide a road map for where the program was going, nor how it could and should be directed to achieve better results. These mechanisms mired the program managers in details they could not hope to manage effectively.

Standing Back

Standing back from the fray, it is easier to see that owners set the rules (and manage the outcome) through the method of procurement they choose, and that the contractor is the entity assuring cost, schedule, and quality control. The owner is assured of project control through three important strategies: timely insight into the day-to-day operation of the contractor; necessary au-

PENTAGON RENOVATION PROGRAM
Significant Project Control/Related Provisions

Milestone Schedules, rolled up from detailed schedules on a monthly basis, that include milestones prescribed by the program manager.

Progress Bars, show work completed against a baseline in a bar format.

Banana Curves show work completed against the early and late finish dates.

Earned Value analyses of cost and schedule data, used in a trend for assessing current, and predicting future, schedule and cost status.

Cost Loading, vs. price loading, schedules.

Contractors' Choice of software for scheduling and document control, as well as for monthly reporting date.

Metrics for monthly status reviews.

Market Basket cost-escalation methodology for contracts being executed over a large number of years.

Contractor's Option to not exercise succeeding options with specified notice to the owner, to preclude prolonged failing relationships.

Award Fee in lieu of profit on proposals, to keep the contractor motivated to satisfy the owner throughout the contract.

Incentive Fee that shares cost savings and overruns, within limits, to motivate the contractor to reduce contingencies and costs, resulting in an overall lower project cost.

Best Value selection, to ensure only the best firms compete for the contract and improve the likelihood that the selected contractor has the management and technical capability, knowledge of the project, and motivation to be successful.

dits; and periodic reports against certain milestones and other metrics—not voluminous, detailed, frequent formal reports. This allows the program manager to more clearly see the big picture, while others manage the necessary details. The program manager can then succinctly assess the true progress and status of the program, effectively brief oversight agencies on a macro scale, influence the progress of the program on the macro level, and provide for effective introduction of new elements into the program as time goes on.

Each of these project controls is included in the ongoing procurement of a single design-build entity to renovate the remaining 4½ million square feet in a single $700-million contract, known as "Wedges 2-5." The Pentagon Renovation program currently has five projects under construction and at least three in pre-construction. The most significant project control and related provisions affecting the management insight and partnering on the Pentagon Renovation Program are shown above. These elements are used in most of the construction contracts now being awarded on the Pentagon Renovation Program, and the government staff are trained or are continuing training in the implementation of these elements. Not all elements were introduced at the same time, but most have been implemented already. These contract provisions work synergistically; that is, the project control provisions work even better because of the environment created by the procurement provisions such as design-build and award fee. However, the project control provisions will work well even without the companion procurement provisions used in the Pentagon Renovation Project.

The remainder of this article will discuss the project control provisions only, not the companion procurement provisions. These project control provisions were a reaction to the unsatisfactory results brought about by more traditional approaches and provisions for project control. Each traditional provision and its unsatisfactory result will be explained, as well as a proposed improvement to the provision and our results to date. Some of these provisions have only recently been implemented, and substantive results will have to be documented further in the future.

Pentagon Renovation Program Manager Lee Evey points out that the Metro subway, which runs adjacent to the building and currently empties into the building, further complicates the historic building's site renovation.

Photos by Richard Mattox

Milestone Schedules

Monthly updates of contractor schedules tended to be thick computer printouts of data relating to the early and late start and finish of all activities in the schedule. The schedules were often in the range of 30,000 activities. This is a rather unwieldy package to cart around, ineffective as a briefing tool, and unusable by anyone not steeped in translating such data into a "picture" of the project's status. Further, the reports were of little value in quickly determining the "big picture." Although there were mile-

Evey (left) views progress at Metro Entrance Facility (MEF) work site from a cherry picker. With him is Fred Cobb, member of the MEF construction crew.

Evey (right) discusses progress on the Metro Entrance Facility work site with Brett Eaton, Information and Communications, Pentagon Renovation Program.

stones identified in the schedule, there were so many milestones identified that they lost their value.

Milestones need to be identified—and hence coded—at several levels, depending upon what is important at particular levels of management. This is similar to the number of activities in a schedule. The higher the level of management, the more attention to the big picture, and hence the less the level of detail of any specific project. For example, top-level program management may need only a few activities to be shown on each project, but several projects to show the big picture of a program. To brief the Deputy Secretary of Defense or a Congressional Committee on the Renovation Program, our program manager looks closely at 30 construction milestones. That gives a fairly clear and understandable picture of the program, with some critical details about the component projects. Further detail is readily available, but that additional detail is hung on the framework of the 30 milestones shown at the top of the next page—making it more readily understandable to managers and oversight organizations that do not have day-to-day familiarity with the program and its substantial detail.

Inspection of these milestones reveals that they tend to show the start and end of a group of like activities that would be identified separately at the next lower level of management. While the successful ordering and delivery of each long-lead item (such as the steel frame of a building or the chilled water system compressors) is critical, only the identification of all long-lead items has been selected as a program manager milestone. This allows the program manager to query the next lower level of management about identification of long-lead items at monthly reviews or on an ad hoc basis until the milestone has been reached. It frees the program manager from wading through the detail of every long-lead item, and keeps the overall goal (all long-lead items identified) and its status readily determinable.

Inspection of the milestones also reveals that some of the program manager's milestones may well be useful to some members of his staff, but not of any real consequence to other members who are more narrowly focused on their own responsibilities. For example, the acquisition staff is very interested in the release of the Request for Qualifications, but that activity is of little interest to the financial staff or even to many of the operations staff. On the other hand, final contract payment is of interest to not only the program manager, but also to the acquisition staff, the financial staff, and the operations staff.

By coding these 30 milestones as a unique grouping, they are included in the detailed network of say 30,000 activities, and the software manipulates them along with the other activities at every network updating. After the monthly schedule update of the project, a "roll up" report and a "roll up" graphic of only these 30 selected milestones is prepared. The data affiliated with these milestones have been updated, and the

PENTAGON RENOVATION PROGRAM

30 Key Construction Milestones

The following 30 milestones have been personally selected by the Pentagon Renovation Program Manager as describing those activities key to ensuring success of the program:

- Temporary mechanical, electrical, plumbing complete
- Construction Barriers complete
- Temporary communications complete
- Long-lead items all identified
- Long-lead items all ordered
- Long-lead items all received
- Tenant move-out starts
- Demolition and abatement starts
- Demolition and abatement complete
- Contractor schedule complete
- Critical path analysis completed by contractor
- Unique milestones identified for project and entered into milestone schedule
- Tenant surveys start
- Commissioning plan complete
- All tenant requirements completed
- All move-in tenants identified
- All design intent drawings completed
- All furniture requirements identified
- Furniture deliveries start
- Furniture deliveries complete
- Punch list identified
- Punch list completed
- Tenant move-in starts
- All manuals received
- All manuals and operations booklets received
- All required training complete
- All Wedge work complete
- Final contract payment made
- Option exercise period for next Wedge begins
- Bilateral "option out" period ends for next Wedge.

status of each milestone is reflected on this high-level management report, in both word and graphic formats, to support quick understanding and to facilitate current briefings. Once coded into the network, the updating and production of this report is almost effortless, yet its value is very high.

Figure 1 shows a portion of the program manager's report for notional projects. The dark line is the dateline—the date on which all of the data were updated. The diamonds represent milestones. Those milestones to the left of the dateline should be completed, and those to the right are scheduled to be completed. The first milestone is "BEGIN TFO WORK AREAS FOR WEDGE 1." The milestone was reached on May 22, 2000, as shown by the "A" at the end of "22 MAY**A**,"where the "A" means actual.

The schedule also shows activities that have slipped but are already complete, such as the second milestone, "FIRST PUNCHLIST FOR TENANT AREAS WEDGE 1." The dark diamond shows the original scheduled date, and the open diamond shows the actual date, with the notation 18 Oct**A**. Plotted on a graph (Figure 1), the slip in this milestone is easy to see.

The program manager's report is illustrative of the capability of the network scheduling tools available. While the program manager's report is a mainstay of the monthly program manager's review and useful to many of his staff members, a similar but somewhat more detailed report is also available. For example, the coding of *each* of the long-lead items' identification (rather than one for *all* long-lead items) would permit the generation of a report that would be very useful to subcontractors who order equipment, the owner's project management staff who control submittals, and anyone involved in expediting materials. This project manager's coding would be different from the program manager's coding, so that the information is provided only to the respective report.

FIGURE 1. **Portion of a 30-Milestone Chart (Program Manager's Report)**

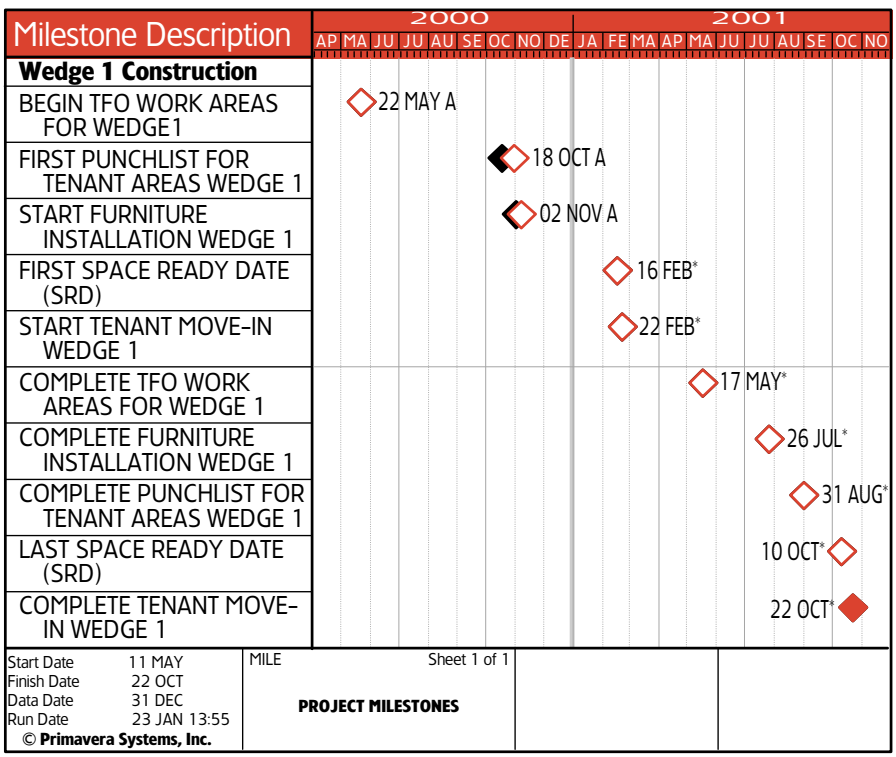
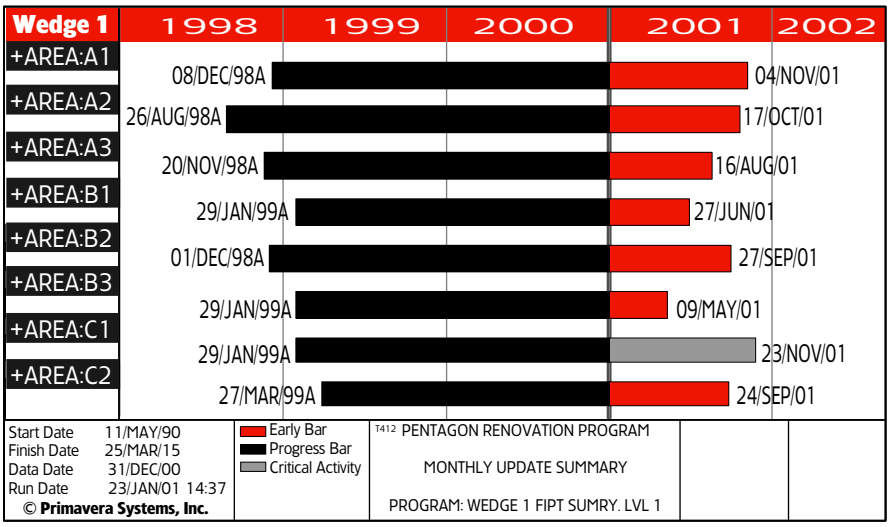


FIGURE 2. **Progress Bars in Standard Display Format**



An alternative solution is to identify milestones for identifying each *group* of long-lead items by trade, such as all electrical long-lead items identified, all mechanical long-lead items identified, and all structural long-lead items identified. This would dramatically reduce the number of milestones for the project manager. At the same time, the project manager could use the electrical long-lead item identification as a means to follow up on the electrical trade contractor or the general contractor until the milestone had been reached. The idea is to create information out of the mass of data by using an appropriate level of detail for the specific level of management. This is definitely not "one size fits all." However, with the power of the computer, the tailoring of reports is relatively quick, efficient, and painless once the network has been set up and the coding put in place at the start of the network—similar to the management principle of "starting with the end in mind."

Adjustment of Progress Bars to be Intuitive

Primavera Project Planner (so-called "P3") is one of the most commonly used scheduling software programs for complex scheduling. Typically, it shows updated progress in a bar chart format.

The problem with the typical display (Figure 2) is that the progress bars always appear to be "on schedule" because P3 automatically puts the right end of the progress bar *on* the data dateline, and extends the remaining portion of the bar to the right of the data dateline. Intuitively, it appears as though the progress is right where it ought to be—while in reality it might be behind, on, or ahead of schedule! Only by comparing the current version of the graph to the previous version of the graph would you notice whether the length of the bar to the right of the data date has changed or not. Because the dark portion (to show progress) of all bars in Figure 2 is on the data dateline, they all appear to be on schedule.

Far more intuitive and useful to those not steeped in the intricacies of P3 is to make adjustments to standard P3 outputs. These adjustments result in the progress bar: ending to the left of the data dateline if the activity is behind schedule, to the right of the data dateline if the activity is ahead of schedule, and on the data dateline only if it is exactly on schedule. Figure 3 on p. 9 shows progress for the same bars, using the same data as in Figure 2. Now their progress is readily determined.

Those with the dark part of the bar:

- To the left of the dateline are behind schedule (Area:A1, Figure 3)
- On the dateline are on schedule (Area:B3, Figure 3)

Managers need a better tool for early recognition of problems as well as a good sense of where the project is going, not merely where it has been. If only looking backward, problems are often of such magnitude that when discovered, little time remains to correct them or they cannot be fully corrected.

WALKER LEE EVEY

Program Manager
Pentagon Renovation Program

Walker Lee Evey is Program Manager of the Pentagon Renovation Project—the largest ongoing renovation project in the United States, if not the world. In this position he reports directly to the Deputy Secretary of Defense. He is responsible for development and control of budgets; work schedules; acquisition strategy; plans and programs for use of swing space; and for coordination and control of all office movements within the Pentagon involved with Pentagon Renovation activities. He serves as the principal adviser to the Secretary of Defense and the Deputy Secretary of Defense for all matters relating to the Pentagon Renovation Program. Estimated total costs for the entire seven phases of the Pentagon Renovation Program, including information management and telecommunications activities, stand at approximately $3 billion.

Prior to his immediate assignment, Evey served as Special Assistant for Contracting, Air Force Office of the Deputy Assistant Secretary (Contracting), Washington, D.C. He came to the Pentagon from Kennedy Space Center, where he served as Special Assistant to the Director, Kennedy Space Center, Fla.; Solicitation Preparation Team Leader, Space Shuttle Space Flight Operations Contract, Johnson Space Center, Houston, Texas; and Director of Procurement, Kennedy Space Center, Fla.

Evey was born in St. Petersburg, Fla. After graduating from Boca Ciega High School in 1964, he attended St. Petersburg Junior College until 1966. He enlisted in the U.S. Army and in 1967 was commissioned a second lieutenant in the infantry. During 1968 and 1969, he served as an Infantry Platoon Leader and Company Commander with the 1st Battalion, 26th Infantry, First Infantry Division, Quan Loi, South Vietnam, where he participated in numerous combat operations. Evey entered federal service in January 1974 as a member of the Air Force Copper Cap Training Program at Patrick Air Force Base, Fla. He is a member of the Senior Executive Association, the Air Force Association and the National Contract Management Association.

Evey holds a bachelor's degree in Psychology from the University of South Florida, Tampa; a master's degree in Special Education, University of South Florida, Tampa; and a master's degree in Management Science, Florida Institute of Technology, Melbourne.

His military and civilian awards and honors include the Bronze Star Medal; Air Medal; Army Commendation Medal; Vietnam Service Medal; Republic of Vietnam Campaign Medal; Combat Infantry Badge; 1992 SES Outstanding Performance Award; 1992 Presidential Rank Award—Meritorious Executive; 1993 SES Outstanding Performance Award; 1993 Group Achievement Award—Information Resources Improvement Team; 1994 SES Outstanding Performance Award; 1994 NASA Exceptional Performance Award; 1994 International Space Station Freedom Award of Merit; 1995 Presidential Rank Award—Distinguished Executive; and 1995 NASA Distinguished Service Medal.

— To the right of the dateline are ahead of schedule (example—Area:B1, Figure 3)

Banana Curve

Typically the contractor's progress is plotted against the early finish curve of a Computer Performance Measurement (CPM), as shown in Figure 4 (p. 9).

Because the progress line is almost always below the early finish line, the contractor almost always appears to be "behind schedule." This can be an unfair assessment—or it could be a valid assessment. There is insufficient information to judge! A better method of graphing the status is to plot both the early finish curve and the late finish curve together. As shown in Figure 5 (p. 10), this forms the so-called "banana curve."

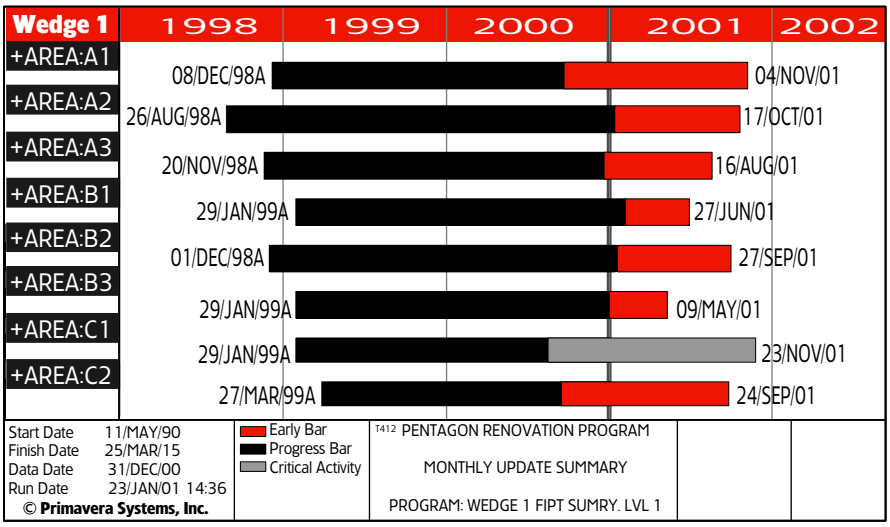
Figure 5 uses the same data as Figure 4. The two curves start and end at the same point. That is, they have the same start and finish dates. If contractors finish by the finish date, they are considered to have finished "on time." In fact, as long as they are above the late finish curve (the bottom one), they are on schedule. They are "on schedule" as long as they are anywhere within the banana curve. However, if the contractors' performance puts them below the late finish curve, they must improve their performance if they are to finish on schedule. This graphical representation is easy for everyone to understand, and it instantly communicates both the project's current schedule status and the trend.

The data for the banana curve are readily available for the standard CPM database, and plotting the curves is relatively simple.

Earned Value Analyses

Much of the analysis of a project using more traditional project controls is from the "rear view mirror." The data are historical and do little to anticipate problems. It is axiomatic that the past is prologue to the future, and those who ignore history are condemned to repeat it. However, managers need a better tool for early recognition of problems as well as a good sense of where the project is

FIGURE 3. **Progress Bars in Adjusted Display Format**



going, not merely where it has been. If only looking backward, problems are often of such a magnitude when discovered that little time remains to correct them, or they cannot be fully corrected.

Earned value analysis is useful as a "road map," helping to provide early warning of problems in both cost and schedule. Earned value is essentially a methodology for achieving internal control. It can also be viewed as a performance measurement system. The cost portion of earned value analysis cannot be used on fixed price contracts, since the owner does not know the cost incurred by the contractor. However, in any type of incentive or cost contract, due to the auditing of contractor cost this parameter provides a valuable insight into the financial health of the project for the contractor.

An unhealthy financial status for the contractor is a harbinger of future problems, and the informed owner will want to identify the underlying problems and query the contractor about curing these problems before they lead to claims, work stoppages, and the like. To be effective as an early warning system, there must be regular reporting and periodic verification of the cost reports. Monthly reporting and semiannual or annual auditing are reasonably achievable, and should provide adequate protections.

The power of earned value analysis is in combining both cost and schedule. While a project may be 50 percent complete at the time it is scheduled to be 50 percent complete, still a problem exists if the contract has been overspent for that point in time. Critical path analyses are standard for CPM-scheduled projects. Tracking items on the critical path, as well as changes to the critical path between updates, is very important in understanding the schedule and project. However, these analyses tend to be quite tedious. Using the schedule information already provided, earned value analysis develops information that is readily understandable in ratio and graphic forms. A combination of the schedule and cost data permits the generation of expected cost *over time* that can be displayed as a curve, with current cost and schedule data plotted against that curve.

The earned value data can also be boiled down into ratios of the earned value divided by the resources expended, or the earned value divided by the scheduled performance. In either case, a ratio above 1.0 is good, and a ratio below 1.0 is bad. These ratios provide a way for the program manager to "triage" the projects, by focusing attention first on those projects that are most in need, without having to first go through a lengthy analysis just to identify the greatest need. Each of these methods permits data on the work completed and the work remaining to be used to predict the completion date and cost within a range of values, and permits management to highlight problems early.

Cost Loaded (Vs. Price Loaded) Schedules

Most of the so-called "cost loaded schedules" in construction are used on fixed price contracts, and cost loading is a misnomer, or at best a confusing term. These schedules are actually "price loaded" from the contractor's point of view, and cost loaded only from the owner's point of view.

With a contract approach that employs reporting of costs being incurred—such as one employing an incentive fee and award fee with no profit on the proposal—a schedule can be developed that truly reflects the cost of the work to the

FIGURE 4. **Progress Vs. Early Finish Only**

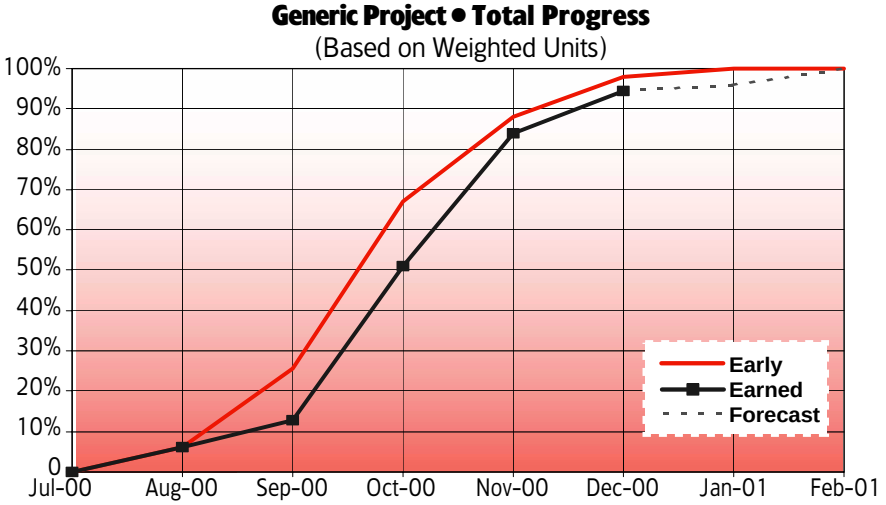
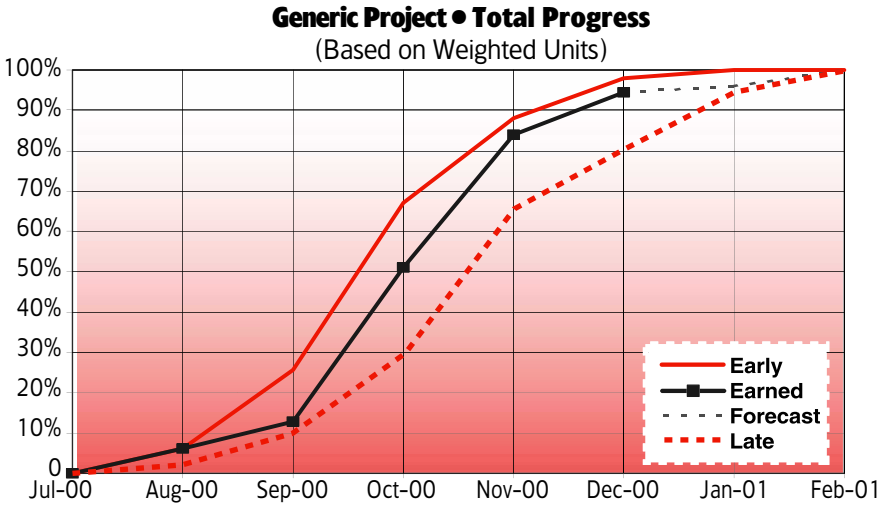


FIGURE 5. **Progress On a Banana Curve (Vs. Early and Late Finish Only)**



contractor and the owner. The total cost to the owner then is the cost from the cost loaded schedule plus the award fee that replaces proposed profit. The cost loaded schedule is useful in developing the earned value analysis already discussed, and in developing a cost curve over time. The cost curve is useful in predicting cash flow needed by the owner to pay the contractor, and in checking actual costs against budgeted costs.

Similarly, if the CPM is also resource loaded, then a graph of resources (such as manpower) through time can be readily generated and used as a control tool.

Contractor's Choice of Controls Software

Contractors will react to any solicitation's provisions for a price based on their cost. Were the owner to specify some unusual type of control software, contractors might take a pass on the proposal. More likely they would determine their cost to acquire the new software and train their employees to use it, and pass along substantially all of this cost in their proposal. The specific type of controls software is not very important if it performs the software functions required by the contractor and owner.

The Pentagon Renovation Program team has told the potential proposers on Wedges 2-5 that the program currently uses both *Primavera Project Planner* and *Expedition*, which are compatible proprietary products of the same vendor. This software is very well known in the industry, but is not the only software in use by many of the companies of the size and quality that make them eligible to propose on this program.

To reduce unnecessary costs, however, the program permits the successful proposer to determine the type of software to be used by the contractor and program under two conditions. First, the software must perform the functions required. Second, the contractor must provide copies of the software and provide training on the software to the government staff. In this way, the contractor will use software it has already implemented, with which it is familiar and efficient, thereby avoiding delay in the start of project controls development.

In a related action, the contractor also determines what day the monthly reviews will be held. Although the program currently has a day designated for regular program reviews, in the case of the Wedges 2-5 project it will be the largest project in the program and set the pace in several areas. The day selected by the contractor will be a day that is supported by the contractor's existing systems such as corporate accounting.

Each of the potential proposers is a large, experienced constructor and designer. They already have corporate policies that require inputs from all of their projects on certain days each month, and the corporations have the staff to enforce those policies within the corporations. By allowing the contractor to select a date, the owner dramatically increases the probability of current, accurate data being reported monthly by the contractor. If the owner were to specify a date that fell slightly ahead of every other project in the design-build corporation, for example, it would always be an added burden within the corporate structure, and diminish both efficiency and effectiveness. The actual date is usually of no real consequence to the owner, yet can be of real benefit to the project if selected by the contractor.

Monthly Metrics

The program team has been identifying and tracking metrics for several years, and metrics have been quite useful for identifying trends and rules of thumb. Because of the award fee nature of the program's contracts, many criteria comprise the standards by which the contractor is judged each month and rewarded each quarter. The criteria are given to the contractor in advance. The weighting of the criteria (and sometimes the criteria themselves) change during the life of the project—again, with advance notice to the contractor.

These criteria naturally lend themselves to metrics. The program team attempts to gain insight into, rather than control of, the projects. Likewise, the program team seeks a level of confidence as the project progresses, that the intermediate goals are being met, that the trends are headed in the right direction, and that problems are identified and solved quickly. Hence, they prefer to see the metrics being identified and tracked by the contractor as a means of building confidence that the contractor is, in fact, tracking the critical items and managing the project effectively.

Consequently, the contractor participates in the development of metrics to be used jointly at program reviews. Tracking and graphing the same metrics each month provides useful displays

of project trends and leads toward early problem identification. Trend data are far more useful and telling than a single data point.

Market Basket

The "market basket" approach is a means to handle inflation on a long-term contract—possibly 14 years—by developing an inflation factor through time. The market basket approach has several advantages:

- Precludes negotiations later.
- Fixes the methodology before contract award.
- Fixes the rate for the next option period, using the actual experience during the previous option period.
- Is a mix of labor and material indices that closely match the expected labor and materials to be used in the renovation.
- Uses independent, objective, well-recognized indices.
- Uniquely combines indices for the purpose of this project.

The market basket input, because of its independence, is not subject to manipulation by either side. One of the biggest benefits is avoiding what could be protracted negotiations before exercising the subsequent options due to the potential size of the inflation factor. We believe this approach will truly meet the standard of "fair and reasonable" to both sides. Wedges 2-5 will be proposed as a base plus three sequential options, each for about 3-½ years. The uninflated costs of all options are proposed at the same time as the base. Once an option is exercised, the proposed cost for that option is increased using the market basket inflation factor.

Contractor Option of Not Exercising Subsequent Options

While not a controls provision, per se, it is important to understand that on Wedges 2-5, as mentioned previously, the successful contractor will be awarded the base contract; three options are equal in scope to the base. Whereas the government usually has the sole right to exercise the options, in this contract the contractor has the right to notify the government, one year before the end of the base or current option period, that it elects not to accept further options.

> Standing back from the fray, it is easier to see that owners set the rules (and manage the outcome) through the method of procurement they choose, and that the contractor is the entity assuring cost, schedule, and quality control.

The benefits are twofold: first, a reduction in contingency by the contractor for unknowns over a very long period of time (roughly 14 years for the base plus options); and second, to provide a way out of a potentially adverse relationship over many years if the contractor realizes that it is financially untenable to continue. By providing one year's notice, the government can then go into a re-procurement mode to find a successor in an orderly fashion.

The contractor's reluctance to continue could be because the market basket for some reason is unsatisfactory, or it could be for a number of other reasons. Obviously, the program team would enter into discussions with the contractor to determine what the problems are—if they were not already apparent from the monthly reviews and earned value analyses—and determine if some other cure, short of truncating the contract, could be found. However, this mechanism does provide for a clean and orderly transition if things cannot be satisfactorily resolved with the current contractor.

Best Practices

The program team has sought to introduce a large number of program control mechanisms, in conjunction with related contract provisions, which align with four important acquisition strategies :

- Provide "insight" rather than oversight.
- Require the contractor to maintain control.
- Give the government ongoing confidence in the contractor's management.
- Result in the lowest reasonable cost for this complex renovation project.

Many of the controls are developed from the same "database"—a cost-loaded and time-scaled CPM schedule—as well as cost reporting. Some of these provisions were implemented on other programs, while others were developed specifically for the Pentagon Renovation Program. This is probably the first project to use all of these tools simultaneously.

We believe that the practices described in this article represent the "best practices" available in the industry today to assist this program. We also believe that they represent the best hope for bringing in this program, "On Cost, On Schedule, Built for the Next 50 Years."

Editor's Note: The Pentagon Renovation Program Team welcomes questions or comments on this article. Contact *fontanata@army.pentagon.mil*.

PENTAGON
SCENES FROM ORIGINAL CONSTRUCTION, CIRCA 1942

Construction of the Pentagon began on Sept. 11, 1941, and was completed on Jan. 15, 1943, in only 16 months. During the peak of construction 1,500 men worked in three 5,000-man shifts around the clock. The building has never undergone a major renovation, and today—after 60 years—all of its building systems need complete replacement.

Terrace Construction and Entrance

Inner Court, Section "B"

Duct Work, Fourth Floor

Placing Carey Duct in Position

Photos courtesy Pentagon Renovation Office unless otherwise noted

SWING SPACE
PENTAGON RENOVATION PROJECT

To keep the Pentagon operational at all times during renovation, one-fifth of the building's 25,000 occupants must be relocated to swing space, or temporary offices. Over 910,000 square feet (45 floors) of external swing space has been renovated in office buildings in nearby Rosslyn and Crystal City, Va. More swing space has been built-out in the A-ring for personnel who must remain in the Pentagon. In most circumstances, personnel moved into swing space from Wedge 1 will remain in the leased office space until Wedge 5 is completed in 2014.

WEDGE 1
PENTAGON RENOVATION PROJECT

Wedge 1 is the chevron-shaped space accessed by Corridors 3 and 4, encompassing all five floors of the Pentagon. Approximately 1 million square feet in size, Wedge 1 is the first one-fifth of aboveground space in the Pentagon to undergo renovation. Structural demolition and the abatement of hazardous materials began in 1998, followed by the installation of new utilities and the build-out of tenant areas. A phased move-in of tenants began in February 2001.

September, 2000. Steel beams reinforce the walls around the new blast-resistant units on the A- and E-rings. Each window unit weighs approximately 1,600 pounds. The geo-technical material covering the wall between the steel beams acts as a giant "catcher's mitt" in the event of an explosion, preventing debris from injuring the occupants of the room.

March 14, 2001. A key turnover ceremony was held to commemorate the first Navy tenants to move into Wedge 1. The Wedge 1 Project Manager, Dave Westrick (left), looks on while Navy Rear Adm. Pietropaoli accepts the ceremonial key from Lee Evey, Pentagon Renovation Program Manager. The escalator bank in the background, also completed during Wedge 1 construction, greatly improves vertical mobility.

January 2001. The new cafeteria in Wedge 1 will be the only area in the Pentagon with skylights. The cafeteria is on the second floor and will seat approximately 250 people.

Feb. 25, 2001. The first tenants begin to move into Wedge 1. From left: John Butler, Relocation Team Leader, and Lee Evey, Pentagon Renovation Program Manager, ensure the move goes smoothly.

BASEMENT/MEZZANINE
PENTAGON RENOVATION PROJECT

In the haste to construct the Pentagon in 1942, only two-fifths of the building were backfilled. An enormous cavern was built below the remaining three-fifths, creating what would become the basement and mezzanine levels of the Pentagon. These areas were never intended for occupation but became the home of the Air Force in 1947.

As in 1942, basement and mezzanine levels still exist under three-fifths of the Pentagon. This area has been divided into three segments. Segment 1 has been renovated and is now occupied by 1,200 Air Force personnel and the new DiLorenzo TRICARE Health Clinic. Segments 2 and 3 have been demolished and abated of all hazardous materials. The use of one design-build team will help to identify and plan work in the basement and mezzanine. Potentially, this will result in schedule and budget improvements.

June 1997. This damp, dark motor pool area has been turned into a state-of-the-art health care facility. The DiLorenzo TRICARE health clinic opened in March 2000.

June 7, 1995. By lowering the basement floor slab two feet in Segment 1, a new mezzanine level could be created. This added 240,000 square feet of occupiable space to the Pentagon without needing to expand any external walls.

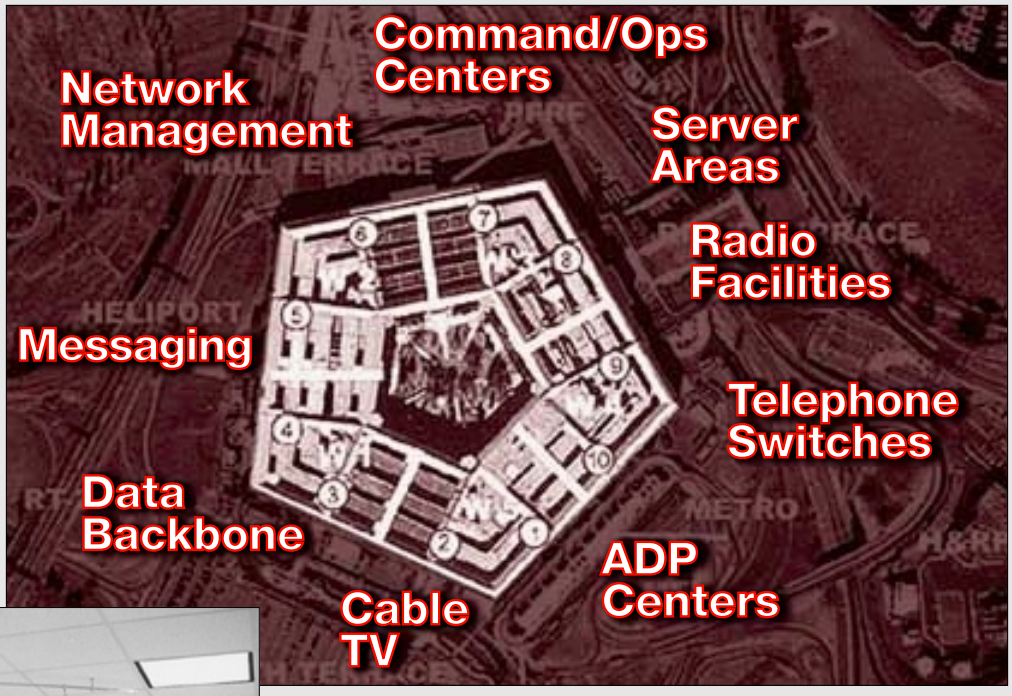
2000. The basement and mezzanine levels in Segments 2 and 3 have been demolished and abated of hazardous materials, but there are no plans to build-out these areas at this time.

Dec. 12, 1995. Pentagon Basement Renovation, Phase 1.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS

PENTAGON RENOVATION PROJECT

Separate but related to the Pentagon Renovation Program is a necessary modernization of the building's Information Management and Telecommunications (IM&T) infrastructure and systems. The IM&T effort will support a modern office environment, provide enabling architecture to maximize benefits of future technologies, and maximize consolidation of services and other economic efficiencies. It will affect every area of the Pentagon before renovation is complete.



April 25, 2001. Inside the Building Operations Command Center (BOCC)—a large atrium with sophisticated wall-to-wall monitoring technology—around-the-clock personnel oversee all building operations remotely. By centrally monitoring operations such as heating, air conditioning, electricity and elevators, the BOCC ensures that a comfortable environment is maintained for Pentagon tenants.

Aug. 14, 2001. The control room for the new Navy Command Center briefing room features modern equipment and allows room for future technology to be implemented as it becomes available.

Aug. 14, 2001. The new Navy Command Center features modern technology, integrated with the furniture configuration, and bright lighting in an "open-bay" atmosphere. The control room for the new NCC briefing room features modern equipment and allows room for future technology to be implemented as it becomes available.

REMOTE DELIVERY FACILITY
PENTAGON RENOVATION PROJECT

The Remote Delivery Facility (RDF) is a new 250,000-square-foot shipping and receiving facility adjoining the Pentagon. The RDF significantly improves the physical security of the Pentagon by providing a secure, consolidated location for receiving and screening thousands of items shipped to the building each day.

July 2001. Aerial View of the Remote Delivery Facility.
Photo by Richard Mattox

July 12, 2001. The Pentagon Remote Delivery Facility is nearing completion. The remaining work includes landscaping the roof of the facility to create a park-like atmosphere. This will enhance the view for the tenants who work on the E-ring of the Mall Terrace and create an alternate location for some of the ceremonial activities that take place on the River Terrace.

December 2000. K-9 units search every vehicle making a delivery to the RDF before any material is unloaded.

Winter 2000. A large amount of security and maintenance shop equipment was installed in the Remote Delivery Facility. A member of the Pentagon building services team is stocking the shelves with equipment for one of the maintenance shops.

June 18, 2001. Members of the RDF design-build team Incorporate a Pentagon-shaped design into the landscaping on the roof of the RDF.

METRO ENTRANCE FACILITY
PENTAGON RENOVATION PROJECT

The Metro Entrance Facility project was directed by Congress in the FY2000 Department of Defense Appropriations Act. Based on recent security assessments, the Pentagon will eliminate the existing Metro escalator/elevator entry points into the building, and increase the distance between vehicles and the Pentagon. This assessment requires the relocation of the existing Metro bus facility and the construction of a new entrance facility. Preliminary construction began on Feb. 7, 2001, with project completion expected in late fall 2002.

Artist's conception of Metro Facility Entrance, scheduled for completion in October 2002.

Sept. 5, 2001. The structural steel framework is being erected at the site of the new Pentagon Metro Entrance Facility. The steel will support canopies for weather protection. The bus platforms, escalators, elevators, and all main paths of travel will be covered.

June 2001. The elevator and escalator pit slabs are in place awaiting the formwork for walls.

April 2001. The new taxi staging area is complete and shelters are being installed.

Construction Update

Within one week of the Sept. 11 terrorist attacks, the Pentagon Renovation Program awarded three contracts to begin the reconstruction of the damaged areas and to move forward with the renovation program. A $520-million contract was awarded to AMEC, the Wedge 1 contractor, to begin the immediate structural restoration of Wedge 1 and Wedge 2, including the tenant fit-out in Wedge 1. A $758-million contract was awarded to Hensel Phelps (HP) Construction to begin design and construction of Wedges 2 through 5; the contract was later modified to allow HP to provide immediate site support during the rescue and recovery effort.

Other letter contracts were awarded to specialty contractors with expertise in historic reconstruction and structural analysis, including KCE, an internationally recognized firm specializing in structural restoration following blast incidents.

The first 40 people have already been moved back into Wedge 1, and the team plans to move many more personnel back in the coming months. Tom Fontana, Information and Communications Team Leader for the Pentagon Renovation Program told *Program Manager,* "At this point, we do not expect the events of Sept. 11 to impact our overall schedule for completion of the Pentagon in December 2012 ... our motivation is strong to get the damaged portions of the Pentagon up and running as soon as possible."

As We Go to Press...

IMMEDIATE RELEASE
Dec. 14, 2001

New Transit Center Opened at Pentagon

Metro bus service returned to the Pentagon on Sunday, Dec. 16, and will operate from a new Pentagon Transit Center, formally dedicated on Monday, Dec. 17. The larger, brighter, and more security-conscious transit center brings regular bus service back to the Pentagon for the first time since Sept. 11. Since that date Pentagon-bound buses have operated from the Pentagon City Metrorail station.

The Pentagon Transit Center, a $36 million project funded by DoD, was designed and planned long before the Sept. 11 terrorist attacks. It is Phase One of security upgrades set for the Pentagon's Metrobus and Metrorail facilities. Based on security assessments, the Pentagon wanted to increase the distance between buses and the Pentagon as well as eliminate the existing Metro escalator and elevator entry points into the Pentagon. This required the relocation of the existing bus terminal.

The transit renovation project enhances the security of the Pentagon's Metro entrance by reorganizing the bus arrival, access, and circulation areas, including the relocation of the bus bays to no closer than 280 feet from the Pentagon itself. The buses picking up and dropping off riders at the old bus terminal had been as close as 10 feet to the building.

Other security upgrades involve the construction of a new Pentagon entrance building and new elevator and canopy at the metrorail entrance with an expected completion by fall 2002. Until it is finished, a temporary covered walkway will allow customers to walk from the new transit center to the escalator to enter the metrorail station.

About 29,000 people a day will use the Pentagon Transit Center, which will have 1,571 bus arrivals and departures each weekday on 84 different bus routes using the center's 24 bus bays.

Additional information on Pentagon metro facility renovation is available at *http://metro.pentagon.mil/mef/home.htm* . Details on Metro bus and rail service may be found at *http://www.wmata.com*. An informative brochure on the new Pentagon Transit Center also is available at *http://www.wmata.com/metrobus/pentagon_transit_center.pdf*.

William "Bill" Erie became the Executive Director, Curricula Development and Support Center, Defense Acquisition University (DAU), effective Nov. 20, 2001. Erie first joined the Defense Systems Management College (DSMC) Sept. 1, 1990, as a Professor of Business Management. He went on to assume positions of greater responsibility, and was eventually appointed DAU Director of Consulting in December 2000. Erie has worked in the acquisition and contracting field for over 30 years as a Chief of Pricing and Financial Services for the Air Force Systems Command; Director of Contracting in the Joint Cruise Missile Program; and Chief of Business Management at the Plant Representatives Office of Lockheed-Georgia Company.

Retired Navy Capt. Dave Fitch became the Deputy Dean, School of Program Managers, DSMC, effective Nov. 20, 2001. Fitch previously served as Executive Director, Curricula Development and Support Center, DAU—a position to which he was appointed on April 9, 2001. Prior to his retirement from military service on Oct. 1, 1998, Fitch served as Program Manager of the Multifunctional Information Distribution System (MIDS), a Packard Award-winning program. Fitch first joined DAU after three years in private industry with Rockwell-Collins in Rosslyn, Va.

Army Col. Joseph Johnson retired from military service effective Feb. 1, 2002. Johnson served as Dean of College Administration and Services, DSMC, and more recently as Director, Administration and Services, DAU, since April 27, 1998. He came to the University from his former position as Commander, Defense Contract Management Command, Baltimore-Manassas. A graduate of Washington and Lee University, Johnson holds an M.S. in Contract and Acquisition Management from Florida Institute of Technology. In addition to the U.S. Army War College, he is a 1993 graduate of DSMC's Program Management Course.

Russell W. Lenz became the Army Chair, DAU Executive Institute, in November 2001. Previously, he was the Senior Executive Service Director, Joint Program Office for Test and Evaluation–JPO(T&E). Lenz served in a variety of roles while assigned to the Air Force Flight Test Center (AFFTC), Edwards Air Force Base, Calif., from 1974 to 1999: Technical Director, 412th Test Wing Technical Directorate, Chief of the Systems Integration Division, Chief of the Acquisition and Development Division, and Chief of the Structures and Flutter Branch. In 1992, he was on the staff of the Office of the Secretary of Defense, Director, Test and Evaluation, Test Facilities and Resources. Earlier in his career, Lenz worked for Martin-Marietta Aerospace Corporation as a structures and dynamics staff engineer. As an Air Force officer in the Strategic Air Command, he was a Space Systems Operations Director at Fairchild AFB, Wash. Lenz holds bachelor's and master's degrees in Aerospace Engineering from the Georgia Institute of Technology. He also holds a master's in Public Administration from the Harvard Kennedy School of Government.

Air Force Col. William P. McNally, a former Professor of Contract Management at DSMC from 1993 to 1996, joined DAU for the second time as the Air Force Element Commander and Deputy Provost in July 2000. While maintaining his position as Air Force Element Commander, McNally was selected to be the DAU Director of Operations in December 2001. Previously, he served as Military Deputy to the Deputy Under Secretary of Defense (Acquisition Reform) and the Director, Defense Reform. Commissioned through the Reserve Officer Training Corps in 1977, McNally has 24 years' experience in the acquisition and contracting communities. His past assignments include serving as a Contract Negotiator; Industrial Specialist; Contracting Officer; Director of Contracts; Commander, Defense Plant Representative Office; and Contracting Policy Branch Chief within the Air Force Secretariat. A graduate of the U.S. Air War College, he holds an undergraduate degree from Manhattan College and an M.B.A. from Golden Gate University. He is a graduate of the DSMC Program Management Course, is Level III-certified in the field of Contract Management, and is a certified Joint Specialty Officer.

Navy Capt. Conway Halsall retires from the military service effective March 1, 2002, after 27 years of active duty in the U.S. Navy. Halsall came to DSMC July 1, 2000, as the Director, School of Program Management, and Manager of the College's premier Advanced Program Management Course. In April 2001, he became the Deputy Dean of DAU's Capital and Northeast Region. Prior to joining DAU-DSMC, Halsall was assigned to Naval Sea Systems Command where he was the Director of Aircraft Carrier Refueling Complex Overhauls. He is a 1974 graduate of Louisiana State University with a degree in Applied Mathematics. He also holds a master's degree in Nuclear Engineering from the University of Virginia, and he has a proven subspecialty in education and training management.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ATEC Names Program/Project Manager of the Year

Army Col. Tom Newberry First Recipient

PHILLIP WASHBURN

Army Project Manager Col. Tom Newberry has received the first-ever U.S. Army Test and Evaluation Command (ATEC) Program/Project Manager of the Year Award during ceremonies at White Sands Missile Range, N.M.

Cited for his "brilliant performance" as Project Manager of the PATRIOT Advanced Capability 3 (PAC-3) program, Newberry received the award in November from Army Maj. Gen. John J. Marcello, ATEC Commanding General.

Newberry is Project Manager for the Lower Tier Air and Missile Defense Systems Project Office, Program Executive Office for Air and Missile Defense, Army Acquisition Support Agency.

"This is a rare honor for me because it is an award from a different community than I live and work in," Newberry said. "The fact that ATEC recognizes me means they recognize the program and the entire PM office and its people," he added.

ATEC, which was organized in October 1999 to consolidate developmental and operational test and evaluation, created the award this year to annually recognize the contributions, accomplishments, and teamwork of an outstanding PM.

In making the award, Marcello said program managers have a tough job. Testers and program managers are partners in the acquisition field, and testers can assist program managers throughout the process.

A Patriot missile heads skyward during the March 31, 2001, PAC-3 test at White Sands Missile Range that involved five missiles in flight simultaneously.

Washburn *is the Command Public Affairs Officer, U.S. Army Test and Evaluation Command, Alexandria, Va.*

Photos courtesy White Sands Missile Range PAO

Col. Tom Newberry, USA
Project Manager
PATRIOT Advanced Capability 3
(PAC-3) Program

Cited for his "brilliant performance" as Project Manager of the PATRIOT Advanced Capability 3 (PAC-3) program. Newberry received the first-ever U.S. Army Test and Evaluation Command (ATEC) Program/Project Manager of the Year Award.

Program managers are "soldiers on the front line" whom testers can help by getting involved earlier in the process, Marcello said. Testers can also provide better support to customers by adopting the hypothesis and attitude that their mission is to prove systems work.

Newberry was selected based on his work this past year managing the multi-billion dollar Acquisition Category I program with oversight from the Office of the Secretary of Defense and the Congress. During 2001, the robust PAC-3 program included joint developmental/operational testing, where one phase saw five missiles in flight simultaneously.

The test involved launching a PAC-2 and two PAC-3 missiles to intercept two missiles, another PAC-3, and a Hera target missile. Both missiles were intercepted.

That test was a success because of the cooperation and coordination among all parties involved. Newberry said all available resources were brought into play during the sophisticated hi-tech test.

During the nomination process, Army Col. David R. Wolf, Director of the U.S. Army Evaluation Center's Air Defense Artillery Evaluation Directorate in Alexandria, Va., said Newberry's "success can be attributed to his cooperative spirit, flexibility, and open-minded approach to solving T&E issues." Wolf also cited the PM's full support to get ATEC evaluators involved early in the system's developmental process and for aggressively seeking all opportunities to place the PAC-3 system in the hands of warfighters.

Strong self-assessment, developmental testing, and early involvement have all been an important part of the PAC-3 program under Newberry, who invited operational testers to participate in the configuration test and assessment. This involvement allowed for early fixes during the initial stages of the program.

A professional relationship between the PM and the testers and evaluators is critical, Newberry believes. If the relationship breaks down, the soldier is the one who suffers, he said.

Newberry said he is comfortable going to operational testing—scheduled for early 2002—because PAC-3 has been through rigorous developmental testing and a self-assessment program.

The Initial Operational Test and Evaluation (IOTE) phase includes testing from January through May at White Sands; Kwajalein in the Marshall Islands; and Fort Bliss, Texas. The 2nd Battalion, 43rd Air Defense Artillery at Fort Bliss will be supporting the IOTE.

Editor's Note: Washburn welcomes questions or comments on this article. Contact him at *WashburnPhillip@atec.army.mil.*

From the White House

CLAUDE M. BOLTON JR.

Former DSMC Commandant Confirmed by Senate as Army's Top Acquisition Executive

The President has nominated and the Senate has confirmed the name of retired Air Force Maj. Gen. Claude M. Bolton Jr. to become the Assistant Secretary of the Army for Acquisition, Logistics and Technology. Bolton's name was forwarded to the Senate Nov. 8, 2001, and confirmed effective Dec. 20, 2001. Prior to his retirement on Dec. 31, 2001, Bolton was Commander of the Air Force Security Assistance Center at Wright-Patterson Air Force Base, Ohio. Well known throughout the acquisition, technology and logistics workforce, Bolton served as the 12th Commandant of the Defense Systems Management College (DSMC) from March 1993 to March 1996.

AMERICAN FORCES PRESS SERVICE

Business Initiative Council (BIC) Promotes DoD Transformation Goals

GERRY J. GILMORE

WASHINGTON, Nov. 14, 2001—Using BIC, senior Defense leaders want to "rewrite" organizational business practices using private sector-inspired ideas and methods in transforming DoD into a more efficient organization for the 21st century.

"BIC" isn't a pen, but [an acronym for] the DoD Business Initiative Council, a group of senior defense officials led by Edward C. "Pete" Aldridge Jr., Under Secretary of Defense for Acquisition, Technology and Logistics. Defense Secretary Donald H. Rumsfeld created the council in June.

Its purpose is "to recommend good business practices and find and implement cost savings that ... could offset the funding requirements for personnel programs, infrastructure, revitalization, re-capitalization, equipment modernization, and anything having to do with transformation," Navy Vice Adm. Joe Dyer explained to Pentagon reporters Nov. 7.

Dyer, Commander of Naval Air Systems Command, recently chaired a Navy-led BIC executive steering committee comprised of three-star officers representing each Service. The steering committees, he noted, canvass the Services, seeking better business ideas or initiatives for adoption DoD-wide.

"Mr. Aldridge specifically gave us a directive to be action-focused, to look wide across the Department of Defense in our workforce, and to be gladiators in the front line of what Secretary Rumsfeld has called the 'Battle of Bureaucracy,'" Dyer remarked.

In addition to Aldridge, BIC members include Army Secretary Thomas E. White; Air Force Secretary James G. Roche; Navy Secretary Gordon R. England; and Marine Gen. Peter Pace, Vice Chairman of the Joint Chiefs of Staff.

The BIC schedule calls for phased steering committees, led in rotation by each Service for six months, said Navy Rear Adm. Robert E. Cowley, Executive Director and representative for the Navy-led steering committee that recently concluded its business. Cowley, also at the press briefing, noted the Air Force is chairing the current BIC steering committee. The Army will follow starting in March 2002, then the Marine Corps.

In September, Dyer said, the BIC approved 10 initiatives from those solicited by the Navy committee. The initiatives—which involve personnel hiring, staffing, financial operations, and acquisition practices—are:

- Modify or waive Civil Service "priority placement" rules to allow expedi-

tious hiring of critically needed scientists and engineers.

- Modify the 180-day waiting period in hiring retired military for Civil Service jobs.
- Change full-time civilian end-strength controls to allow DoD more efficient use of contract employees within the civilian workforce.
- Employ more contingency-fee auditing service contracts to find and recover DoD overpayments to providers of goods and services.
- Allow a higher limit of procurement or research and development funding dollars to be reprogrammed or transferred to other accounts, as needed.
- Increase the use of automated financial management systems to expedite payment to vendors.
- Incorporate a Web-based schedule for DoD test facilities.
- Negotiate new DoD cellular phone contracts to obtain less expensive group rates.
- Expand the Enterprise Software Initiative to streamline the acquisition process through bulk purchase of commercial (off-the-shelf) systems and technologies.
- Implement a common, standard flight clearance process.

Action plans are being developed for the approved initiatives, Dyer noted, adding that some will require decision memoranda from Aldridge, while others, like the reprogramming of research and development funding, will require input from Capitol Hill.

Dyer said this first group of approved initiatives represents "the potential ... of a quarter-of-a-billion dollars" in savings for DoD.

The BIC is actually chartered to run through the end of fiscal 2003, Cowley noted. He said BIC's charter could be extended, based on success.

"We are making progress to date," Dyer said. "We are building the capability to track and measure our savings. There's no shortage of good ideas and no shortage of good things to do."

Editor's Note: This information is in the public domain at *http://www.defenselink.mil/news.*

DoD Enterprise Solutions

Structural/Cultural Issues Remain Major Impediment

RON KLEIN

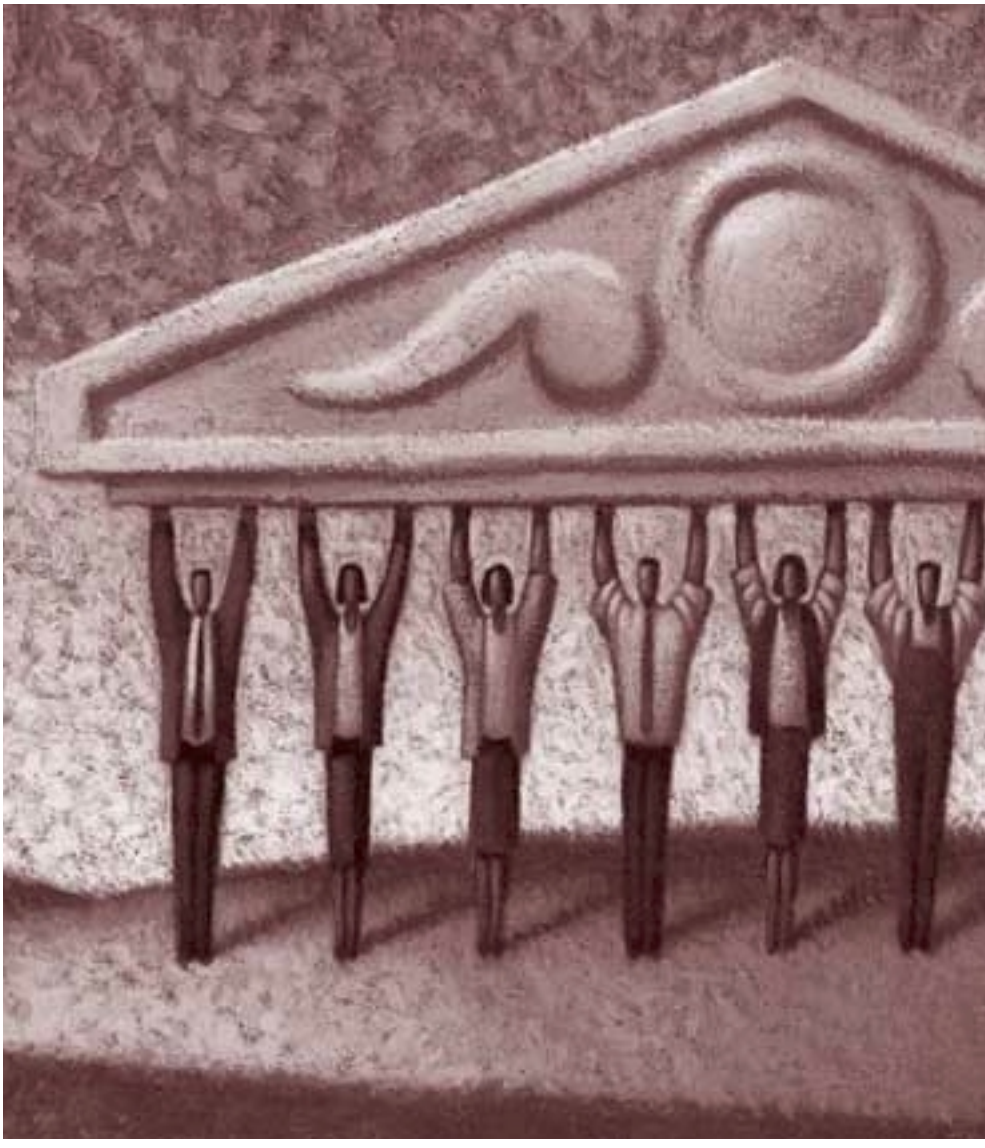
Despite the collapse of the dot.com speculation bubble, networking technologies are bringing substantial improvements to several commercial firms. Many visionaries are searching for applications of these technologies to improve DoD processes—the larger the undertaking the greater the potential payoff.

Large Enterprise Solutions Difficult to Implement

This article will list some of the challenges faced by DoD agencies that make success more difficult to achieve than for their corporate counterparts. Under the best of circumstances, large enterprise solutions are especially difficult to accomplish successfully. The field is littered with far more failures than successes.

Little or No Incentive

In a government agency, what is the incentive to tackle such difficult endeavors? In many instances, a disincentive exists. If the agency is successful in reducing cost by 20 percent, its budget is reduced by the same amount. What rational manager takes on such a difficult, time-consuming, and draining challenge under these circumstances? Even when the financial disincentive is not present, there remains little or no reason to undertake such a disruptive and difficult project.



An example of this is aircraft overhauls. Through a series of process improvement steps, American Airlines now overhauls a Boeing 757 in three weeks. By contrast, it takes 304 days for Corpus Christi Army Depot to overhaul helicopters. Despite being offered the technology, no general or political appointee or congressperson is requiring the Army Depot to undergo such wrenching change.

Can't Make the Business Case

When corporate executives are presented with proposals, they orient on either a Return-on-Investment (ROI) or competitive pressure as the reason to approve, fund, and participate. In the public sector, competitive pressure rarely exists. With respect to establishing an ROI, one must first determine the "as is" costs and the estimated "to be" costs. DoD does not have a cost accounting system that collects this information. Without knowing within some degree

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of certainty the existing full costs, no ROI or payback projections can be made.

Such Projects Require Endurance

Reengineering large, complex processes requires years; it's common for such undertakings to take place over four to eight years. Senior military personnel

typically rotate out of leadership positions every 12 to 24 months. One cannot reasonably expect an executive to orient on the long-term when they are measured on near-term objectives.

Diffusion of Responsibilities

Implementing solutions with outside partners dramatically increases complexity, cost, and risk. The nature of DoD enterprise solutions is that they entail coordination with multiple affected agencies. As an example, a Marine Corps colonel who wants to implement an integrated supply chain improvement must persuade numerous other agencies to change their practices. This list includes, but is not limited to, the Defense Logistics Agency, Department of the Navy, Defense Finance and Accounting Service, legal reviews, impacted supply funding arrangements, quality control, and contracting officers. These agencies have little to gain; proposals often introduce substantial disruption to their organization, and frequently include the risk of job losses. Eliciting the active participation of the senior executive (in this case, the Secretary of Defense) is not viable.

Prospective government employees don't become civil servants because they are attracted to a high-risk environment of innovation. Senior government managers are those who build consensus, not radical and persistent change zealots.

Rewards Come from Concepts, Not Completion

Major development programs require years—even decades to be completed. The personnel appraisal and promotion system rewards new ideas and projects, not the continuation of existing ones. No one gets promoted by stating their performance objective is to "keep the [fill in the blank] initiative on track." Over the course of a program, thousands of unplanned variables emerge such as technology changes, funding variances, and test results. This situation, combined with the diffusion of responsibilities and relatively short assignments, results in an environment where no one can reasonably be held accountable for on-schedule, on-time, at-cost performance.

Since actual performance cannot be measured, one outcome is a culture where new ideas are valued. Ambitious managers know that a promising new initiative will give the appearance of innovative management. In the actual implementation of process innovation, 5 percent of the effort is expended on the development of a plan and 95 percent on the implementation. Since the majority of the reward (recognition) is derived from the development of a new initiative, rational persons will devote their time and energies devising new or modified plans (and emphasizing how superior their new or modified plans are compared to the status quo).

Congressional Funding is Stovepiped

Congressional funding for programs is provided to program managers to achieve success on their particular programs. Enterprise solutions, by definition, require the resources of multiple agencies.

Government Personnel Tend to be Risk- and Change-Averse

Government employees, by their nature and training, tend to be risk- and change-averse. Prospective employees don't become civil servants because they are attracted to a high-risk environment of innovation. Senior government managers are those who build consensus, not radical and persistent change zealots.

Every Decision Must Pass Widespread Scrutiny

The nature of public policy is such that every decision must face the scrutiny of auditors, Congress, citizens, and firms who feel they may have been slighted. No major change can take place if anyone who is adversely affected has veto power.

Increased Efficiency is Not a High Priority

The primary objective of public policy is fairness. Also high on the list is the need to avoid fraud and errors. The Federal Acquisition Regulation and congressionally directed goals are explicit in establishing other public policy objectives at the cost of efficiency. By contrast, firms have two objectives: they need to increase revenue and decrease cost (via improved efficiency).

Major Impediment—Structural/Cultural Issues

The major impediment to enterprise solutions is not regulations, but rather the types of structural and cultural issues discussed in this article. This is not to suggest that smaller, intra-agency improvements should not be pursued. Areas abound where process innovation and/or technology can improve DoD operations. Dedicated employees who want to improve government efficiency, however, would do well to direct their energies to undertakings that have the potential to succeed.

This environment also suggests that the optimal solution will often be outsourcing an entire process. Government employees are often averse to this solution because it appears to reflect poorly on their capabilities. But the reason FedEx can implement instantaneous tracing and tracking systems, and Caterpillar can deliver spares worldwide in 48 hours is not because they have brighter people, but rather due to their elimination of these types of institutional barriers.

Editor's Note: The author welcomes questions or comments on this article. Contact him at *rklein@belzon.com.*

Executive Order 13160, Ensuring Equal Opportunity in Federally Conducted Education and Training Programs

Executive Order 13160, issued on June 23, 2000, prohibits discrimination on the basis of race, sex, color, national origin, disability, religion, age, sexual orientation, and status as a parent in federally conducted education and training programs. On Nov. 17, 2001, the Assistant Secretary of Defense (Force Management Policy) issued guidance on implementation of the President's Executive Order.

The Executive Order was issued in order to achieve equal opportunity in all federally conducted education and training programs and is premised upon the notion that the Federal Government should hold itself to at least the same principles of nondiscrimination in educational opportunities as it applies to the educational programs and activities of recipients of federal financial assistance. Toward that end, the Executive Order is intended to supplement existing laws and regulations that already prohibit many forms of discrimination in both federally conducted and federally assisted educational programs.

View the complete Executive Order online at the OSD Chancellor of Education Web site (*http://www.chancellor.osd.mil/*).

Certified Defense Financial Manager (CDFM) Program

The American Society of Military Comptrollers (ASMC), in partnership with the Department of Defense, has developed a formal certification for defense financial managers. A wealth of information is available for those who manage DoD resources—information that a practitioner needs to know in order to perform at a professional level within the DoD financial management community. That wealth of knowledge was not addressed with any other available certification program.

The Certified Defense Financial Manager (CDFM) Program establishes a standard of excellence for professional managers of defense resources. The CDFM exams are available to anyone who has a high school diploma or equivalent and three years' defense-related financial management experience or has two years' defense-related financial management experience and at least an associate's degree. The program consists of three computer-based examinations that address the 12 core competencies for DoD financial managers.

For additional information on CDFM, check out the ASMC Web site at *http://www.asmconline.org/cdfm/welcome.html* or contact Frank Arcari, (703) 549-0360, x226. To call toll free, dial (800) 462-5637, x226, or e-mail Arcari at *arcarif@asmccertification.com*.

e-Card Will Help Soldiers With Studies

JIM CALDWELL

Fort Monroe, Va.—Soldiers in professional-development courses will soon be given a credit-card-size e-Card to help them with research projects.

The e-Card fits into a computer's CD-ROM drive. When it is inserted, it will automatically show the links to military Web sites and other distance learning resources. When the soldier clicks on the name of the Web site, the connection is made.

"The cards will be given to soldiers attending courses on levels above basic training and AIT [advanced individual training]," said Col. Christopher Olson, Director of Training Development and Analysis Activity for Training and Doctrine Command's Deputy Chief of Staff for Training. Olson oversees the building of The Army Distance Learning Program, for which the e-Card was developed.

When the distance learning system is completed in fiscal 2003, he said there will be 700 classrooms equipped to receive or originate interactive video and computer-based training throughout the network.

Students attending Noncommissioned Officer and Officer Education Systems as well as distance learning courses will be given an e-Card.

Soldiers enrolled in The Army University Online, or eArmyU, are issued computers with the information on the e-Card already loaded.

Soldiers should keep the card they are given, officials said. When soldiers take future courses, they can use it again. If the system has added or deleted Web site links, the card will be automatically updated when it's inserted into a computer CD-ROM drive.

The e-Card is based on similar cards used in industry. On the playing side is a raised circle that fits into the CD recess in the computer's drive. Once the e-Card fits into the recess and the tray is closed, the Web sites on the e-Card are displayed.

The cards currently contain 28 Web sites, but that will increase, according to Jim Wood, information and marketing contractor with Communication Technologies, the company that makes the CD-ROM cards.

"The next iteration will have more than 30 Web sites," Wood said.

Editor's note: Caldwell is a writer for TRADOC News Service. This information is in the public domain at *http://www.dtic.mil/armylink/news.*

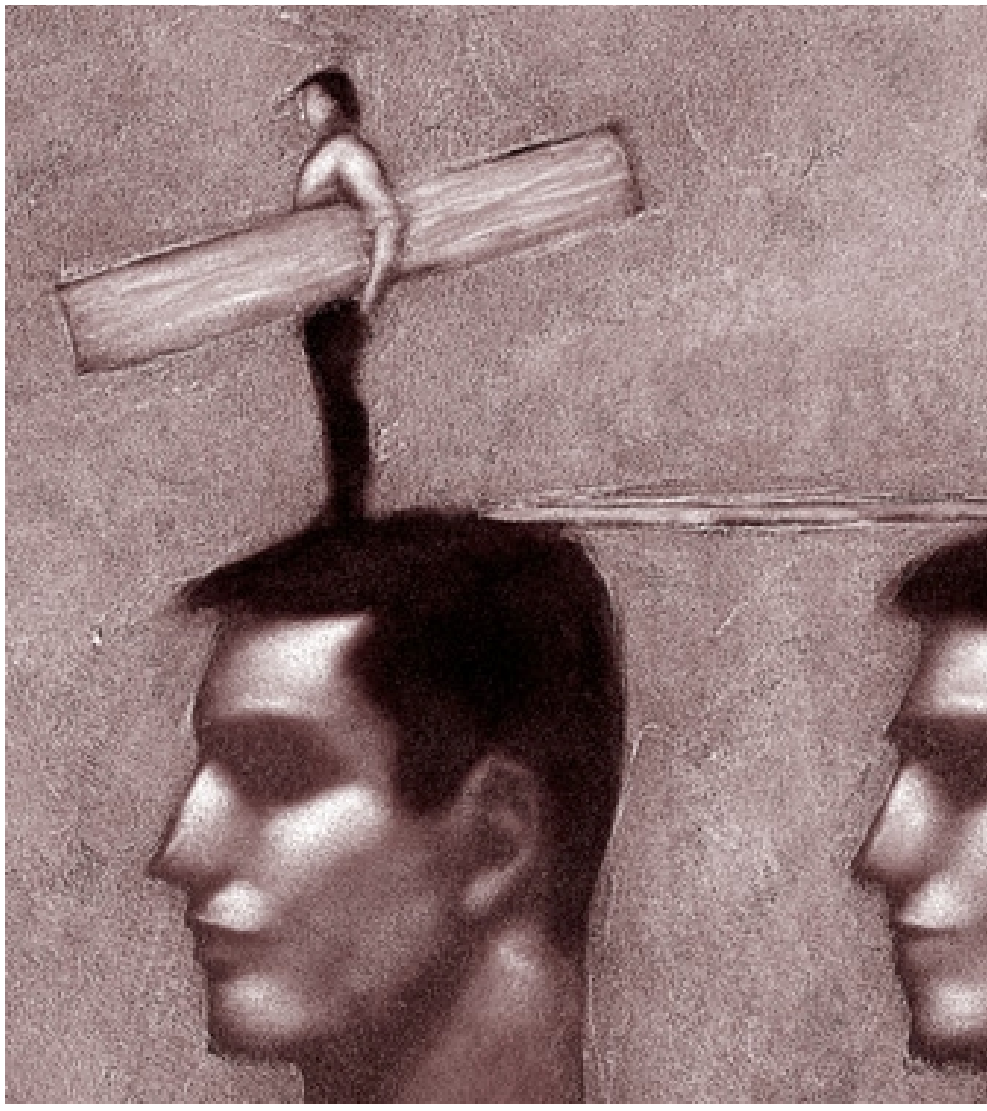
When Leaders Fail

Living with the Consequences of Missed Coaching Opportunities

BOB RUE

"I've been fired." The words struck like thunder since the person on the other end of my email was a colleague whom I had grown to admire, even though I had never seen the quality of her work. Still, the person whom I had gotten to know appreciated continuous learning, was approachable, smiled easily, and had a natural curiosity about management and organizations.

"I'm not bitter—I'm kind of relieved," she continued. "I knew my boss believed that I wasn't worth training."



Individual Worth

"Wasn't *worth* training?" I thought. "How can that be?" Unfortunately, this is not an uncommon event in most organizations. The root-causes of termination may be many. It may be due to a poor hiring decision based on the hiring supervisor's lack of clarity on the competencies required by the job. Perhaps the competency requirements are clear, but the candidate misrepresented their abilities. Perhaps employee dishonesty played a part. Maybe a simple personality conflict emerged. Frequently, however, a candidate is hired with limited competencies with the clear understanding that training and a suitable learning curve will backfill the candidate's knowledge gaps. And sometimes that development, along with some critical coaching, never takes place.

Nonetheless, firing someone for nonperformance without the proper level of support for the learning that would have enabled the employee to succeed is as glaring an indictment of the manager as it is the employee. *Both failed to perform.*

This article will look at the critical skills of performance coaching by supervisors and managers with employees who report directly to them. In their role of managing the human assets of the organization, coaching skills are critical. What are coaching skills? How is coaching different from

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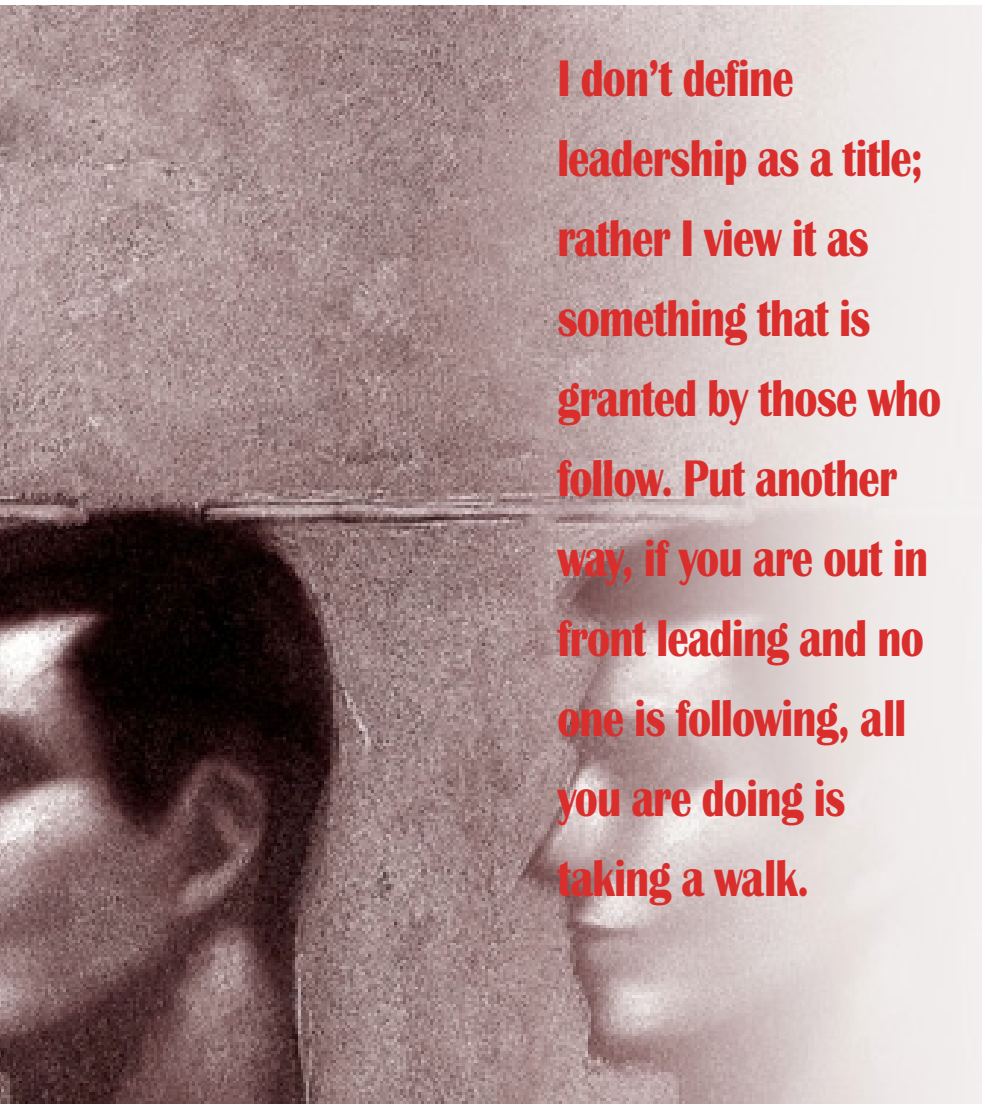
mentoring? Can the supervisors/managers develop their coaching skills? What consequences will supervisors/managers inevitably face without coaching? Of course, supervisors/managers who fail to understand the relationship that leaders develop with followers are also at a huge disadvantage. Therefore, this article will talk about supervisors/managers as coaches *and* leaders.



Defining Coaching and Mentoring

Let's clarify the difference between *coaching* and *mentoring*. Coaching is the assistance offered on a specific goal/objective, is usually professional, and involves cognitive skill development or guidance in mapping a strategy to attain a desired outcome. To a coach, success of the individual is defined by successful execution of the task(s) leading to the desired outcome. Thus, coaching may incorporate the teaching inherent in training. The difference, however, between coaching and training is that coaching also involves some diagnostic work to determine if training is appropriate, and if so, what training would be most effective? The coaching focus is to enable the person being coached to accomplish a *specific* performance standard.

Mentoring involves supporting the *total* human package (i.e., personal development, professional development, etc.) and is much deeper and inclusive of the entire person (much like a close relative, scout leader, or minister to a young person going through adolescence). To the mentor, success of the entire person in the context of his or her life is the goal.

For example, a coach would help a subordinate develop the skills to master cost accounting. A mentor would go deeper (largely due to the deeper trust a mentor develops with the person being mentored), helping the person discover whether cost accounting is of sufficient interest to explore as a career field based on the individual's interests, hobbies, background, and beliefs. Many people go into a career field due to the work or expectations of their parents, regardless of their own personal interests. A coach might never touch upon this issue, whereas a mentor would probe it.

Managers should coach as an expected part of their job. Effective leaders coach *and* frequently they mentor as well because of the trust they engender with some of those who follow. Unfortunately, both terms are commonly used interchangeably. They are, however, intended to describe very different relationships.

Traditionally, coaching was intended to address a performance problem, thus preventing the derailment of a promising career. In *Executive Coaching: An Annotated Bibliography*, Christina A. Douglas and William H. Morley contend that coaching has further evolved to a method of enhancing the performance of high-potential talent.

As a professional observer of management *and* leadership over the past 30 years, this definition contains many of the elements of leadership. I don't define leadership as a title; rather, I view it as something that is *granted* by those who follow. Put another way, if you are out in front leading and no one is following, all you are doing is taking a walk.

By contrast, supervisor and manager are titles. Titles imply a span of responsibility. For example, a widget production manager is responsible for all aspects of widget production, while the widget quality control supervisor over-

sees the quality aspects of widget production. Unfortunately, nowhere is leadership of others implied; yet, it is very much a part of the job if supervisors/managers have anyone reporting to them.

When supervisors/managers choose to coach, they demonstrate key leadership skills. This is because the coach and the learner build a relationship of *joint* trust and dedication. Not surprising is the fact that those supervisors who coach with excellence are usually considered exceptional leaders by those they coach. Coaches demonstrate loyalty and commitment to their colleagues by paying attention to the overall development of those employees who are their direct subordinates.

The Leader's Dilemmas

Leaders, i.e., supervisors/managers, are frequently "too busy" to pay much attention to the development of their most critical resource—their employees. When employees don't receive the training and support that enable them to succeed at job-related tasks, the meta message (i.e., the unspoken, frequently unconscious message that underscores every form of communication) sent to the employee is that they, *and the work they do*—are not very important nor of particular value to the organization.

Under-trained personnel are a huge drag on organizational effectiveness. Of course, they are inefficient. They lack critical skills that reduce them, over time, to incompetence. This places them in the humiliating position of appearing to their co-workers as providing little value. The longer it continues, the lower morale across the unit sinks, not only for the under-trained employee, but also for those who must pick up the additional burden of the employee's minimal effectiveness. Anger flares (usually at the employee), and unit cohesion deteriorates.

Interestingly, the discomfort of supervisors with their own inability to train others effectively, their lack of compassion for others, or their unconscious power issues that maintain rigid senior-subordinate (top-dog vs. bottom-dog) relationships, are frequently at the root of their reluctance to coach subordinates. *Coaching is an expression of leaders' personal commitment to their subordinates' success.*

Conversely, when employees and their supervisors design and implement a development plan to help employees *quickly* gain critical skills, the meta message is that they and their jobs are valued in the organization. When knowledge and skill are given to employees, they tend to use such attributes wisely. Learners esteem the teachers (supervisors, managers, or parents) who give them knowledge, then help them develop and apply it.

When employees are coached and given ample time to ascend their individual learning curves, both coaches *and* employees deeply explore the competencies exceptional job performance requires and whether or not employees have—or can develop—those essential competencies. When experience clearly demonstrates that the desired competencies are not present in employees, separation from the job (*not* necessarily the organization) becomes the obvious alternative to *both* parties. Thus, the potential negative impact on self-esteem of employees is reduced. They can move forward with greater clarity about their future job options. Likewise, managers know what competencies are critical in finding successful replacements.

Stages in the Change Process

UNFREEZING

- Disconfirmation of old behaviors → Anxiety about outcomes / Guilt about outcomes
- Save Face (avoid defensive response)

MOVING *(i.e., Cognitive Restructuring)*

- Coaching/Mentoring/Training
- Job rotation (On-the-job learning)
- Temporary assignment

REFREEZING

- Successful outcomes aligned with goals
- Reward (intrinsic strongest form of reward)
- Recognition

A Coaching Case

As a new insurance industry supervisor in the late 1970s, my company hired an administrative assistant who I'll refer to as Pat. I did a poor job of interviewing Pat (of course, in those days I had never been offered training in interview techniques). I assumed that if she passed the company's screening, she was fully qualified. Pat appeared pleasant and committed to learning our business. She passed the requisite typing test administered by the company. She was hired and was very happy to have the job.

From the outset, however, Pat struggled with accuracy in typing and filing. We immediately worked on developing a strategy for helping her become more proficient. Pat was intelligent (she had a teaching degree) and was willing to work long hours if that would help her succeed. Her positive attitude was contagious throughout the office.

Over time, it became clear to *us both* that Pat's skills were simply too limited for secretarial work. I was really perplexed. Her limitations were making both of our jobs increasingly difficult. Mistakes slowed down our mutual productivity substantially since they meant more rework and proofreading. We both faced mounting pressure from management,

who grew increasingly frustrated over the poor quality of my customer correspondence. Even her increased attention to proofreading failed to improve the quality of her work. Documents were unavailable due to misfiling. My coaching efforts weren't working very well!

Assuming that your direct subordinates understand what your expectations are without benefit of a recent conversation about those expectations—which are constantly changing with various situations—is unrealistic ... Assuming they will somehow "figure it out" without your help is also wishful thinking.

Then one day, we were informally talking about her education degree. I was shocked to hear that Pat's degree was in special education working with learning-disabled children. I discovered that she loved working with children. When I asked why she wasn't teaching, she told me she couldn't find a position in her field.

We agreed that she could use a portion of each workday for three months to hunt for such a position; in the meantime, I began learning something about special education and area schools specializing in teaching learning-disabled children. Within three months, Pat had found a position and left the insurance industry, not only with the sense that she had learned something valuable about herself, but also with her dignity intact.

I had learned much as well. During her search for an alternative field of work, Pat shared with me that she had moderate to severe dyslexia. Dyslexia is a condition that allows a dyslexic reader to see letters and numbers on the printed page as reversed. I learned that dyslexic children take much longer to learn to read since they see words that make no sense to them. At the time, I knew nothing about dyslexia. As I learned about this disability, I began to understand why she had such difficulty in proofreading and filing. When interviewing for her replacement, I was much clearer about candidate skills, performance expectations, attitude toward work, developmental needs, as well as dyslexia. The latter knowledge helped me understand my own daughter's learning disability several years later.

Coaching Pat allowed us the opportunity to build a relationship of trust. Without that trust, Pat would not have shared with me her knowledge of her disability. It was too personal—sharing it in public, too unsafe. Appearing incompetent in one's public work environment was too painful for her. Her confidence in my confidentiality was critical. I would have missed an opportunity to learn about a disability that counts thousands of people among its victims. I could well have repeated the same mistake in interviewing her replacement.

The Change Process

Since coaching is concerned with the behavioral change of another person, it makes sense for the coach to be familiar with a change model. Kurt Lewin's change model, shown on the previous page and described in his *Frontiers in Group Dynamics: Concept, Method and Reality in Social Science: Social Equilibria and Social Change*, outlines three stages in the change process: *Unfreezing*, *Moving* (cognitive restructuring), and *Refreezing*.

Unfreezing

Unfreezing means coaching candidates discover (i.e., disconfirm) that their old behavior is no longer effective. This can be the most difficult of the stages. Often painful and confusing, Unfreezing can create vulnerability in change candidates. Unfreezing actually occurs at the precise moment when they *realize* that an old behavior, which has operated successfully for years, is no longer working for them.

This realization *only* takes place when change candidates feel anxiety about continuing the old behavior (perhaps the outcome is one that is unintended and unwanted), or guilty about using the behavior (perhaps it causes unnecessary stress on others).

The second ingredient for successful Unfreezing to occur is the need for change candidates to "save face." This is the precise reason why effective coaching must take place in privacy. Most of us can relate to the humiliation of being singled out for criticism within a group. The emotional response is to become defensive and resist the value of the feedback. When this defensiveness takes place, disconfirmation cannot be successful.

Success in coaching someone through Unfreezing is to act in support by offering complete *emotional safety* during the Unfreezing stage. That support is granted when coaches remain in inquiry mode rather than losing patience and resorting to directive behavior.

Moving

Moving means changes in attitude, values, structure, feeling, or behaviors—

what typically happens when people discuss and plan new actions. Old behaviors (sometimes old, trusted behaviors) are stripped away. The resulting vulnerability can be disconcerting. A new behavior is needed immediately to replace the old, disconfirmed behavior. This is the stage when coaching is effective. Change candidates welcome new skills that can be *directly linked* to their desired outcomes. Immediate practice of the new skill sets is required before change candidates become comfortable with the new behavior.

Coaches conduct the training or arrange for the training to take place. Sometimes, the most appropriate method of education is a temporary assignment or a complete job rotation. Sometimes, being sent to skill-building courses will provide a range of new behaviors—behaviors that candidates would not have been previously open to learning.

Refreezing

Refreezing takes place once change candidates discover that outcomes are aligned with their ultimate goals. This success serves to reinforce the effectiveness of the new behavior.

In Refreezing, coaches provide feedback by pointing out effective use and results of the new skill(s). Further, coaches question how candidates *feel* about the results. For Refreezing to occur, candidates must sense the *intrinsic* satisfaction that comes with the results offered by mastery of a new skill. Once coaches recognize the successful change, recognition on the part of change candidates themselves accompanies the intrinsic reward, thus providing the foundations of Refreezing.

Understanding the change process that all of us go through whenever we want a different outcome to a particular situation offers coaches a theoretical framework on which to hang their coaching efforts.

The Coach's Attitude

Before looking at the coaching process itself, it first makes sense to understand that coaching is an attitude—a frame of mind. Effective coaches understand one basic caveat: people behave the way they do for a reason that to them makes sense. Whether it makes sense to the rest of the world is not the issue. Given their view of the world, their beliefs and their assumptions, their behavior—in the context of a specific situation—their actions make sense to them.

Coaches, therefore, need to adopt the approach of inquiry rather than censure. Where are the individuals being coached going off track? What is it about their view of the world, their beliefs, or their assumptions that requires realignment?

Pat, for example, knew her work was full of mistakes, and her mistakes were adding pressure to our working relationship. My demanding more of her would only have made a difficult situation even tougher. Once we had determined what was important to Pat and what she was educated to do, the solution became evident to us both. The result is that we became allies in finding a solution, rather than adversaries in attacking her incompetence. Effective leaders develop the ability to confront difficult situations while maintaining clarity about the needs of all involved, discovering common ground, and working toward a solution that moves the entire process forward toward the goal.

When parents coach, they achieve similar results. When trust builds jointly between child and parent, the parents' leadership relationship with the child strengthens. Coaching helps children develop their reasoning and problem-solving abilities as well as their communications skills. Coaching helps parents develop their listening skills and their ability to ask questions that safely and respectfully cut to the heart of issues.

The Coaching Process

Once coaches are clear about their attitudes, they are ready to put into action the coaching process. Four distinct steps are involved in the coaching process:

- The initial meeting
- Assessment phase
- Feedback and development planning
- Plan implementation and follow-up monitoring and consultation.

Initial Meeting

The initial meeting is designed to set goals and expectations for both the coach and the person receiving the coaching. What does the entire process look like? Who will have access to any data generated by the coaching (i.e., confidentiality)? What would both like as an outcome? How often should we meet? How should we meet? How will we know if we are successful? This meeting may be one-on-one, or may involve other appropriate personnel such as bosses, human resource personnel, or senior executives.

Assessment Phase

The second step is the data gathering and assessment phase. This is where the relationship of trust begins to build. Various tools may be brought into the process such as 360-degree assessments (i.e., performance feedback gathered from the learner's boss, peers, *and* subordinates), performance reviews, interviews, and personality instruments. Information is gathered from multiple appropriate sources, including the coaching candidates, peers, coaching candidates' direct subordinates, family members, and friends. Typically, Unfreezing takes place during the assessment phase. Coaches facilitate Unfreezing by remaining in inquiry mode and allowing change candidates to discover the old behavior's effectiveness. Maintaining confidence and privacy are critical to building an environment of trust and emotional safety.

Feedback and Development Planning

The third stage is the very heart of the coaching and aligns itself with the *Moving* stage of Lewin's model. Typically, this involves assessment feedback, building self-awareness for making needed behavioral changes, and planning a developmental path. This stage is where the critical skill of inquiry is required of coaches. This is where the individuals being coached need to assess and determine their own weaknesses and cre-

ate a plan for building effective, alternative behaviors. When the individuals being coached do not grasp a key element, coaches must continue asking questions about consequences and desired outcomes.

Plan Implementation and Follow-up Monitoring and Consultation

Support to anyone attempting a change of behavior is critical. Different people require different methods and levels of support. During the fourth stage of the change process, and remaining in inquiry mode, coaches probe for the design elements of a follow-up monitoring process. What kind of mechanism works best for coaching candidates? How often should the coach check in? How will the candidate know that the change is working? Coaches are on the lookout for small changes that offer small rewards. These small, initial successes build change candidates' confidence and sense that they are on the right track.

Perhaps the most strategically critical aspect of effective coaching is that employees are learning how to eventually supervise others by using the same skills their coaches used with them.

A sound, disciplined follow-up plan is a critical element of successful and sustainable change. When change efforts fail, all too frequently a lack of effective and adequate follow-up is the root cause.

Consequences of Not Coaching

Many years ago, as a young Army lieutenant, I learned a critical management lesson: your direct subordinates can make you look inept, even while they are technically "doing their job." When specific job training is lacking, employees follow the safest path: they follow the rules to the letter. If they are well trained, they can learn the subtle differences between various situations that call for a different approach. They learn how much latitude they have in decision making. They understand more clearly the boundaries of their roles. Conversely, they can accomplish great things once they believe in what they need to do. When they do good work, you as the supervisor look good.

The coaching relationship is most effective when the expectation of the supervisor acting as coach is discussed during the interviewing process. From Day No. 1 of a new hire appearing on the job, supervisors begin looking for behaviors that will hinder or help new employees transition into the working unit. If effective coaching is introduced early, employees begin to fear organizational change less, as they know they can depend on their supervisors to share information honestly and openly with them throughout the change process.

They begin to trust that their supervisors are watching for opportunities to help them strengthen their performance. They share questions and concerns more openly with their coaches, and the coaches learn about those facets of the employees' jobs that are particularly difficult, challenging, or rewarding. Perhaps the most strategically critical aspect of effective coaching is that employees are learning how to eventually supervise others by using the same skills their coaches used with them.

When supervisors establish a coaching relationship with each person in their unit, they can begin to coach the unit in building unit interdependence and cohesion. At this point, employees within the unit begin to consistently excel by handling rapid change and supporting each other during times of intense work demands or absences due to vacations, illnesses, or separations.

Assuming that people understand all facets of their job, that they are all equally skilled at all facets of the job, or that they enjoy all facets equally are unrealistic assumptions. Likewise, assuming that your direct subordinates understand what your expectations are without benefit of a *recent* conversation about those expectations—which are constantly changing with various situations—is also unrealistic. Finally, assuming they will somehow "figure it out" without your help is wishful thinking.

One thing is certain. Behavior that falls short of expectations will continue unless supervisors/managers intervene. If you *always do* what you *always do*, you *always get* what you always *get*.

Perhaps my fired colleague was a poor "fit" for the job. Or, perhaps she could have enjoyed a rewarding and productive career in her old field, but we will never know for sure which is the case. We do know that the organization has to go through the expense and time to recruit a replacement, and once recruited, help that individual move through the learning cycle until he or she masters the work. That could take a year. Then again, if the individual receives no coaching, it could take much longer while history repeats itself.

Supervisors/managers who coach for change lessen the pain of change by developing trust that creates followers. These followers are more open to change, more able to develop, more satisfied with their work and coworkers, and ultimately, more able to contribute in the future. Isn't that leadership?

Editor's Note: The author welcomes questions or comments on this article. Contact him at *Robert.rue@hanscom.af.mil.*

Army to Realign, Cut Weapons to Fund Warfighting

JOE BURLAS

WASHINGTON (Army News Service, Nov. 19, 2001)—The Army will soon move to realign the Department of the Army headquarters staff and cut a number of weapons systems from the drawing board in order to better support Transformation and the warfighting force, according to the Army's top civilian leader.

Secretary of the Army Thomas E. White made those observations during an Association of the U.S. Army [AUSA] symposium held in Washington Nov. 8-9.

"Being at war is no excuse for not implementing business reform—we should not assume that we're going to be granted an unlimited budget as a result of 11 September," White said. "The reality is that we're under fiscal constraints as a consequence of the enormous investment our nation is making in recovering from the attacks and pursuing the war against terrorism. Thus, transformation of our business practices cannot wait, and we're going to start at the top."

White, a retired Army brigadier and former chief executive officer of a Fortune 500 company, directed a task force last June to examine all functions of the Army and Secretariat staffs. The goal was to make realignment recommendations that reduce redundancy, maximize the use of technology, and incorporate other successful better business practices from the corporate world.

"No successful corporate headquarters in the world today is organized the way we are in Headquarters, Department of the Army [HQDA]," White said when he initiated the staff review last summer. "We currently have two separate staffs, often performing some of the same or similar functions."

The recommendations are now in, but the Army will wait until Senate Armed Services Committee leaders and select budget representatives are briefed before releasing the results. However, White did say that the recommendations will allow the Army to move realigned military manpower slots from HQDA "to the tooth end of our warfighting capabilities" when incorporated.

The Army expects to complete the HQDA realignment by next spring, he said.

Two additional realignments are planned: one for the Army's field operating agencies and another for its major military commands.

The Army will recommend the elimination of a number of weapons systems under development, including the fire-and-forget Tube-launched, Optically tracked, Wire-guided missile system, in order to fund higher priority programs, White told reporters during the AUSA symposium. A list of those systems will not be available until it clears the Senate Armed Services Committee, according to Army officials.

"We have made difficult choices to focus the money where we think it needs to be," White said.

Editor's Note: This information is in the public domain at *http://www.dtic.mil/armylink/news*.

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Affordability—The Road Ahead

DAU Hosts 11th PEO/SYSCOM Commanders' Conference

LEON REED

The 11th Program Executive Officers/Systems Command (PEO/SYSCOM) Commanders' Conference—the first held after the events of Sept. 11—provided the usual informal interactions between government and industry personnel involved in systems acquisition. Underscoring every presentation, however, was concern about the aftermath of Sept. 11 and how it will affect DoD's Acquisition, Technology and Logistics workforce, the entire Defense industry, and the nation at large.

Over 400 acquisition professionals from government and industry, including many flag officers and senior civilians, attended the conference, which was held Oct. 23-25, 2001, at the Fort Belvoir campus of the Defense Acquisition University.

Keynote Address

The keynote speaker, Edward C. "Pete" Aldridge Jr., Under Secretary of Defense for Acquisition, Technology, and Logistics (USD-AT&L) welcomed the attendees. Aldridge noted that the last time he had spoken "to such a large group of AT&L people was on Sept. 10 … That morning, I enjoined our workforce against complacency by pointing out that three out of our nation's five last major wars came as surprises. I think now we can change that to four out of six." He noted that much has changed since the attacks and that much more must change. "We're going to have to re-evaluate our priorities, our thinking, and our method of doing business."

Networking during a break in conference activities are from left: Army Maj. Gen. Joseph L. Yakovac Jr., PEO for the Army's Ground Combat Systems; Army Lt. Gen. (now Gen.) Paul J. Kern, Commanding General, U.S. Army Materiel Command; and Air Force Brig. Gen. Jeffrey Riemer, PEO, Command and Control and Combat Support.

DAU President Frank Anderson Jr. (left) welcomes Under Secretary of Defense (Acquisition, Technology and Logistics) Edward C. "Pete" Aldridge Jr. Also on hand to welcome Aldridge is DAU Commandant Army Col. (P) James Moran.

***Reed** is a member of the Research Staff, Institute for Defense Analyses, Alexandria, Va.*

Photos by Richard Mattox and Leon Reed

Speaking with Aldridge (right) during a break in conference activities are from left: Gerald Daniels, President and CEO, Military Aircraft and Missile Systems, The Boeing Co.; and John Young, Assistant Secretary of the Navy (Research, Development and Acquisition).

He reviewed his five goals and commented on how the events of Sept. 11 have shown the importance of these goals.

1

Achieve credibility and effectiveness in the acquisition and logistics support process. Aldridge stated that it is a principal objective of his to achieve "enough confidence on Capitol Hill that they give us a bit more leeway." But Aldridge noted that DoD must earn this trust. The events of Sept. 11 provide a great opportunity to accomplish this, but DoD must "scrub all our initiatives and programs to identify those activities and practices that slow the process." He challenged the audience to support this objective. "If you spend the next 30 years in acquisition, you may never get a better chance to change the way we do business."

2

Revitalize the quality and morale of the AT&L workforce. The events of Sept. 11 have highlighted the importance of DoD's workforce. While the Armed Services can take action to forestall retirements during the crisis, the civilian workforce managers cannot, and the pending retirements of a large portion of the workforce "represents a train wreck heading straight toward us." The essential challenge has not changed, and indeed has become more urgent. "We need to recruit younger, more tech-savvy workers and take steps to improve the recruitment, training, and retention of skilled workers."

3

Improve the health of the defense industrial base. Aldridge commented that the events of Sept. 11 highlight the link between the health of the industrial base

SPEAKERS

Industry CEOs/Presidents

Edward C. "Pete" Aldridge Jr., Under Secretary of Defense (Acquisition, Technology and Logistics), Moderator

Vance Coffman, Chairman and CEO, Lockheed Martin

Gerald Daniels, President and CEO, Boeing Military Aircraft and Missile Systems

Mark Ronald, President and CEO, BAE Systems North America

Program Executive Officers

Retired Air Force Lt. Gen. Thomas Ferguson, Moderator

Navy Rear Adm. Charles Hamilton, PEO Surface Strike

Army Brig. Gen. Edward Harrington, Director, DCMA

Air Force Brig. Gen. Jeffrey Riemer, PEO Command and Control and Combat Support

Army Brig. Gen. John Urias, Deputy Commanding General for Acquisition, Army Space and Missile Defense Command

Service Materiel/Systems Command Commanders

Retired Air Force Gen. Larry Welch, President and CEO, Institute for Defense Analyses

Army Lt. Gen. Roy Beauchamp, Deputy Commanding General, Army Materiel Command

Navy Vice Adm. Joseph Dyer, Commander, Naval Air Systems Command

Navy Vice Adm. George Nanos, Commander, Naval Sea Systems Command

Air Force Gen. Lester Lyles, Commander Air Force Materiel Command

Wall Street

John Douglass, President and CEO, Aerospace Industries Association, Moderator

Byron Callan, First Vice President, Merrill Lynch

Pierre Chao, Managing Director, Credit Suisse First Boston

Wolfgang Demisch, Managing Director, Dresdner Kleinwort, Wasserstein

Heidi Wood, Vice President, Morgan Stanley

Service Acquisition Executives

Michael Wynne, Principal Deputy Under Secretary of Defense (AT&L), Moderator

John Young, Assistant Secretary of the Navy (Research, Development and Acquisition)

Ken Oscar, Assistant Secretary of the Army (Acquisition, Logistics and Technology)

Harry Schulte, Acquisition Executive and Senior Procurement Executive, Special Operations Command

Blaise Durante, Deputy Assistant Secretary of the Air Force (Management Policy and Program Integration)

Individual Speakers

Donna Richbourg, Director, Acquisition Initiatives

Terry Little, System Program Director, Lethal Attack Joint Program Office

Luncheon Speakers

Robert Walker, Chairman of the President's Commission on the Future of the Aerospace Industry

Allen Beckett, Principal Assistant Deputy Under Secretary of Defense (Logistics and Materiel Readiness)

and its ability to provide first-class equipment to the warfighter. "Indeed, the apparent success of our enemy in damaging our economy underscores this problem." DoD is taking actions to bolster the industrial base and is examining options to increase production capability. "Our war effort is as dependent on a healthy industrial base as it is on the young people serving in the Armed Forces."

4

Rationalize weapon systems and infrastructure with defense strategy. Aldridge stated that "many people would like to believe that with the advent of war, this issue of infrastructure has gone away on the grounds that we need every bit of infrastructure in the inventory. Not so. We need this realignment now more than ever." He noted that "with the end of the Cold War the security environment has changed, as has the capability and productivity of modern business. But DoD has not kept pace. The transformed military must be matched by a support structure that is equally agile, flexible, and innovative." One area he highlighted was to "tighten up the definition of core government function. Areas of the infrastructure that contribute directly to the warfighter should be owned by the DoD, with the rest being considered for outsourcing."

5

Initiate high-leverage technologies to create the warfighting capabilities, systems, and strategies of the future. The new war on terrorism will require the capability to develop new technologies and transform them rapidly into advanced capabilities. "If there ever was an asymmetric, technology-dependent war, the one we are fighting is it." He noted that "the key to leverage and force multiplication is technology. The means and methods by which we pursued [our] technological advantage in previous years are no longer adequate to our needs … The only thing between an effective high-technology war fought on our terms and the war of attrition desired by our enemies is our technological advantage."

From left: Donna Richbourg, Director, Acquisition Initiatives, OUSD(AT&L), and Navy Vice Adm. Joseph Dyer, Commander, Naval Air Systems Command. Photo digitally enhanced by Ed Boyd

From left: Army Lt. Gen. Roy Beauchamp, Deputy Commanding General, Army Materiel Command, and retired Air Force Gen. Larry Welch, President and CEO, Institute for Defense Analyses.

Aldridge also discussed his emphasis on defining acquisition effectiveness metrics, "because you cannot manage what you cannot measure." OSD has established top-level metrics, including cycle time reduction, stability, logistics cycle time, Reducing Total Ownership Cost (R-TOC), Cost As an Independent Variable (CAIV), and spiral development.

Following his keynote address, Aldridge moderated a panel of aerospace industry Chief Executive Officers (CEOs). Subsequent panels included other leaders of the acquisition community, including Service Acquisition Executives (SAEs), PEOs, and System/Materiel Command commanders. A Wall Street panel provided insights about how DoD practices influence the competitiveness of the aerospace industry. Despite their varying perspectives, the speakers at the conference substantially agreed on a number of key issues.

Impacts of Sept. 11 and the War on Terrorism

Several speakers commented on the impacts of the terrorist attacks and the subsequent war on terrorism, not only on the acquisition community but also on the defense industry. These impacts include an increased sense of urgency about many of DoD's missions, concern about security of industrial and military facilities, potential increases in production of selected military equipment, and increased concern about the short-term prospects for the U.S. economy.

Army Lt. Gen. Roy Beauchamp, Deputy Commanding General, Army Materiel Command, noted a particular increase in concern about manufacturing facilities, from the viewpoint of both potential production increases and security precautions. Ammunition production and chemical weapon storage and destruction are of particular concern.

Army Brig. Gen. Edward Harrington, Director, Defense Contract Management Agency (DCMA), noted that DCMA has also become increasingly active in performing vendor surveys in the wake of the events of Sept. 11. Program managers are increasingly concerned about the potential impact on their schedules if a vendor is lost or the ability of a vendor to ramp up production is impaired.

Navy Vice Adm. Joseph Dyer, Commander, Naval Air Systems Command, agreed that the biggest change within the Naval aviation community has been that the PEO/Weapons is carefully checking where the Navy's smart weapons are located, and identifying the Navy's critical supply sources.

Navy Vice Adm. George Nanos Jr., Commander, Naval Sea Systems Command, said that concerns with security have increased significantly. "We're a lot more suspicious than we were," he stated. He noted that shipyards have traditionally maintained strong security on the land side, but have been more open to non-military traffic on the water side. This now is taking much more attention. "We are spending a lot of time in the area of force protection."

Air Force Gen. Lester Lyles, Commander, Air Force Materiel Command, commented that "besides force protection, which applies to everyone, what I hear is a heightened sense of urgency, a very strong focus, and a desire to transform the way we do business so that we can support the warfighter."

Michael Wynne, Principal Deputy Under Secretary of Defense (AT&L), commented that many people within DoD have turned their attention to what can be done to prevent further terrorist actions. "What can we do right now to deter or protect ourselves from such an event happening? We don't want to watch it on CNN and be forced to be as reactive as we are now." He urged the defense industry to turn their attention to this problem.

Several speakers pointed out the direct impacts the attacks had on industry. Byron Callan, First Vice President, Merrill Lynch, noted that one immediate impact of Sept. 11 has been to brighten the short-range future for some parts of the defense industry. "The public is more interested in defense right now. There's more money for national security, though it won't be open-ended." He noted that investors are now more interested in defense stocks, and it may be easier for defense contractors to raise capital.

Several speakers said that the terrorist attacks also appear to have magnified what was already developing as a troubled situation for the commercial aerospace industry. The twin impacts of the Sept. 11 tragedy and the emerging recession have done severe damage to the aerospace industry's primary commercial customers.

Retired Air Force Brig. Gen. John Douglass, President and CEO, Aerospace Industries Association, noted that not only have new orders for commercial airliners dried up, but many airlines have cancelled existing orders, leaving a growing backlog of "white tails"—airliners in production that don't have a customer.

Gerald Daniels, President and CEO, Military Aircraft and Missile Systems, The Boeing Co., agreed that "the airline industry has taken an extremely hard hit," and this will affect both the commercial and defense segments of the aerospace industry. The commercial side of the aerospace industry, which has been sustaining the industry for the past decade, now is very unhealthy.

Program Stability

As in every previous PEO/SYSCOM Commanders' Conference, a substantial number of speakers identified program instability as a major source of cost and cycle time growth.

For example, Dr. Vance Coffman, Chairman and CEO, Lockheed Martin Corporation, identified the lack of stable funding and stable requirements as principal barriers to effective acquisition programs. "Nothing is more disruptive than changing the schedule or funding," he stated. "It just obliterates progress." Air Force Brig. Gen. Jeffrey Riemer, PEO Command and Control and Combat Support, agreed on the principal barriers. "The biggest risk is unstable requirements and unstable funding."

Army Brig. Gen. John Urias, Deputy Commanding General for Acquisition, Army Space and Missile Defense Command, also agreed about the importance of funding stability, asserting that it "sets the stage for success or failure." He cited several programs under his purview that had "huge funding stability problems." Acknowledging that some of this instability resulted from performance problems, he said that others were "just Congressional or Departmental budget decisions, where funding was pulled out and moved elsewhere. That really ramped up the cost."

Nanos asserted that business stability is a key to cost reduction and affordability. He described the results of a business wargame in which shipbuilders were asked for proposals to "produce 15 ships for the price of 12." Nanos

EXHIBITS

A number of exhibits provided additional information on key DoD organizations and initiatives. Exhibitors included:

Army
POC: Col. Jim Stevens, USA
james.stevens@saalt.army.mil

Air Force
POC: Col. Mary Ann Seibel, USAF
mary.seibel@pentagon.af.mil

Defense Acquisition University
POC: Chris St. John
chris.stjohn@dau.mil

Defense Contract Management Agency
POC: Julia McNair
jmcnair@hq.dcma.mil

Navy Acquisition Reform Office
POC: Daphne Wanzer
dwanzer@dynsys.com

Navy SeaPort MAC Award
POC: Stephanie Curry
currySR@navsea.navy.mil

Open Systems Joint Task Force
POC: Kim Moore
kim.moore@osd.mil

Special Operations Command
POC: Sheila Lewis
LewisS@socom.mil

Virtual Technology Expo
POC: Joanne Spriggs
Joanne.Spriggs@osd.mil

John Hickok (left), DAU Knowledge Management Officer and Program Management Community of Practice (PM CoP) Co-Lead, greets visitors to the DAU e-Learning Exhibit.

Retired Air Force Brig. Gen. John Douglass (center), President and CEO, Aerospace Industries Association, visits the Navy Acquisition Reform exhibit. Douglass is a former Navy Service Acquisition Executive.

noted that "they were all fairly obvious recommendations, and they all dealt with business stability."

Aldridge pointed out that the initial pricing of programs is a particularly important aspect of stability. "You can't start as many programs, but the ones you start will have more credibility. Every time you have these programs that are underpriced, you have to slip them. Properly pricing programs is a cost savings matter."

John Young, Assistant Secretary of the Navy (Research, Development and Acquisition) agreed that budget instability is a major cause of subsequent delays and cost growth. "We need to better communicate the impact of general reductions. These small cuts force a significant increase in costs … Frankly, in some ways fewer fully funded programs would be better than the process of trimming everything along the way. These trims waste manhours, they increase costs, they force rebaselining of the programs, and renegotiation of contract line items."

Evolutionary Acquisition

Virtually every speaker agreed that the new acquisition procedures calling for evolutionary acquisition are a major improvement in the acquisition process. Aldridge stated that the acquisition community increasingly is embracing this concept, "which calls for using mature technologies to produce weapon systems that meet many—but not necessarily all—of the operational requirements when the system is first deployed. The concept then calls for incorporating upgrades to those systems later, when the technologies are available. The objective of Evolutionary Acquisition is to accommodate the needs of the warfighter more quickly, more precisely, and more economically."

Retired Air Force Gen. Larry Welch, President and CEO, Institute for Defense Analyses, observed that aircraft systems traditionally have developed a Model A with initial capability and then provided successive blocks with greater capability. Dyer commented that "we now believe any given aircraft platform

From left: Gerald Daniels, President and CEO, Military Aircraft and Missile Systems, The Boeing Co.; Michael Wynne, Principal Deputy Under Secretary of Defense (AT&L); and Dr. Vance Coffman, Chairman and CEO, Lockheed Martin Corporation.

will have 4½ avionics suites in its lifetime. We have to accept that the system is going to evolve."

Terry Little, System Program Director, Lethal Attack Joint Program Office, commented that the former process, which required the program to have a complete requirements baseline and fully funded program by Milestone I, was more likely to cause cost and schedule problems. "The problem was, very often at that point in a program we didn't really know enough to have a budget or a firm set of requirements, but the system forced us to do that. The result often was gross disappointment later in the program when we learned more and found out that some of our early projections turned out not to be true."

Several speakers suggested that DoD must look beyond the acquisition community to the requirements community to ensure iterative requirements are fully implemented. For example, Lyles commented that a final necessary evolution is to develop a spiral ORD [Operational Requirements Document]. "We did away with specifications, but left this long ORD saying exactly what we want. Presently, the ORD defines the entire system capability and then we may buy it in a spiral way. We need to go the final step to spiral ORDs, because sometimes we can't define the final capability at the outset of the system."

Little said, "Once you have a real ORD, you can forget about performance trades. Once you have a firm set of requirements, you don't have flexibility anymore in cost or schedule. So one of the deliberate things in the new acquisition process is to maintain some flexibility in the requirements so that you really can make these trades."

Aldridge also said that "another element of spiral development is the requirement that cost be considered as an independent variable in all systems acquisitions. In our age of limited resources, this requirement—which is just fiscal triage—is long overdue." Dyer agreed. "If you have good requirements, an independent cost estimate, an integrated schedule, and full and stable funding, you should have a successful program. If you miss one of those, you're struggling; if you miss two, you'll fail."

Cycle Time and Cost Reduction

There was widespread agreement among the speakers that acquisition and logistics cycle time reductions are key requirements to reduce costs and improve affordability. Coffman pointed out that "as we drive out costs, we improve performance. The challenge is making the 'Arsenal of Democracy' as good as it can be in providing the military the systems it needs."

Coffman asserted that many program delays are budget-driven rather than schedule-driven. "We can't afford to put more money in, so we'll buy at this rate. It's very damaging to be constantly re-

Terry Little, System Program Director, Lethal Attack Joint Program Office, and retired Air Force Lt. Gen. "Tom" Ferguson.

TUTORIALS PROVIDE OPPORTUNITY FOR UPDATES

Buoyed by strong attendance and good feedback from the tutorial sessions presented at previous PEO/SYSCOM Commanders' conferences, organizers of the 11th conference decided once again to schedule two tracks of tutorials at Fort Belvoir on Oct. 23, the day before the formal conference opening. Once again, the tutorials were focused on new initiatives and emerging issues of substantial interest to the acquisition community. The topics and presenters included:

Information Assurance—Implementation Lessons Learned
Rick Harvey, Research Staff Member, Institute for Defense Analyses (IDA); Richard Hale, Defense Information Systems Agency (DISA), Chief Engineering Aide for IA; and Louise Davidson, Chief of Naval Operations (CNO), Information Warfare Division.

Navy Capt. Kevin Peppe, Branch Chief, Strategic and Tactical System Requirements, J-8, presents a tutorial on "Chairman Joint Chiefs of Staff Instruction (CJCSI) 3170.01B."

Defense Microelectronics Activity (DMEA)
Ted Glum, Director, Defense Microelectronics Activity.
Building Implementation Strategies for Evolutionary Acquisition
Patrick Place, Senior Member of Technical Staff, COTS-Based Systems, Software Engineering Institute; and Joe Ferrara, Consultant.
CJCSI 3170.01B
Navy Capt. Kevin Peppe, Branch Chief, Strategic and Tactical System Requirements, J-8.
On-line Support for the Program Office; Program Management Community of Practice (CoP) Awareness
John Hickok, Knowledge Management Officer, DAU and PM CoP co-lead; Page Glennie, Acquisition Knowledge Management, Department of the Navy (DON) Acquisition Reform Office and PM CoP co-lead; and Noel Dickover, PM CoP Risk Management co-lead.
Contractor Cost Sharing
Carol Covey, Deputy Director, Defense Procurement, Cost, Pricing, and Finance.
Electronic Business/Electronic Commerce
Dr. John Godbey, Acting Deputy Director, Defense e-Business Program Office.
Implementation of R-TOC by Pilot Programs and DLA
Leon Reed, Research Staff Member, IDA; and Doug Walker, Chief Weapon Systems Support, DLA.
CMMI and Systems Integration
Mike Phillips, Program Director, CMMI Special Projects, Software Engineering Institute; and Air Force Lt. Col. Melanie Benhoff, Project Officer, National Reconnaissance Office.
Acquisition Community Integrated Digital Environment
Air Force Maj. Shaun House, Action Officer, Work Culture Transformation Board.
Air Force Warfighter Rapid Acquisition Process
Air Force Maj. Arnold Lee, Chief Deputy, Acquisition Reform; and Ron Mlinarchik, Assistant Deputy, Acquisition Reinvention.
CPARS/IPARS/EVM Reporting Consistency
Larry Szutenbach, Strategic Planning Division, Office of the Assistant Secretary of the Navy (RD&A); and Mike Bone, Director, Contract Management, Lockheed Martin.
Application of Earned Value Management, a Defense Contract Management Agency (DCMA) Perspective
Frank Lalumiere, Program Support and Customer Relations, DCMA; and Michael Lowry, EVM System Policy and Process Owner, DCMA.

Carol Covey, Deputy Director, Defense Procurement, Cost, Pricing, and Finance presents a tutorial on "Contractor Cost Sharing."

planning the program." Daniels agreed that a principal challenge in reducing cycle time is to "get that dead time out of the system. The challenge is not to reduce time by 10 percent, but by a factor of 10."

Wynne remarked that R-TOC Pilot Programs have developed very promising cost and cycle time reduction initiatives. More efforts are needed to spread R-TOC beyond the Pilot Programs.

Blaise Durante, Deputy Assistant Secretary of the Air Force (Management Policy and Program Integration) agreed that the R-TOC approach is important. "It offers the chance to get visibility into true costs." He said that flying hour costs are increasing at the rate of 12 percent a year, but that aging aircraft costs are hard to address because they are hidden in O&M [Operations and Maintenance] budgets.

Dr. Ken Oscar, Assistant Secretary of the Army (Acquisition, Logistics and Technology), noted that the Army is reorganizing its acquisition process to put all program managers under PEOs. He stated that the PMs will be given authority over "every single color of every kind of money," including tech base funding and O&M.

Nanos said incentives are key to cost reduction. "Contractor profit in the shipbuilding industry depends on revenue, not on productivity. I believe we'll solve this problem when we figure out how to align this incentive so that industry is compensated for improvements in productivity."

Young also was critical of government practices. "Our system easily fosters these inefficient types of behavior that perform within the rules, such as taking a program's money when they achieve savings. The current rules really make efficient, affordable behavior the exception. I'm confident the new team intends to change these things."

Urias described a cost-reduction initiative, which has been successful in reducing PAC-3 [Patriot Advanced Capabilities–3rd Generation] unit costs by one-third. The initiative involved alternate materials, reduced parts count, lean manufacturing, and other initiatives. "Coupled with some incentives and some additional funding, we were able to kick-start some cost-reduction initiatives where the savings would be put back in the program."

PEOs from left: Army Brig. Gen. Edward Harrington, Director, Defense Contract Management Agency; Air Force Brig. Gen. Jeffrey Riemer, PEO Command and Control and Combat Support; Navy Rear Adm. Charles Hamilton, PEO Surface Strike; Army Brig. Gen. John Urias, Deputy Commanding General for Acquisition, Army Space and Missile Defense Command; and retired Air Force Lt. Gen. "Tom" Ferguson.

Defense Industry

A number of speakers commented on the importance of industry in supporting DoD's warfighting capabilities. Some parts of industry are not economically healthy right now, and DoD's practices have an important impact on the economic health and responsiveness of the industry.

Coffman observed that "America still is the Arsenal of Democracy … We all share in the objective of making the Arsenal of Democracy as good as it can be … We in industry recognize that we have a special responsibility in this first war of the 21st Century."

Several speakers noted that the events of Sept. 11 have increased concern about the health and responsiveness of the industrial base. Dyer stated that he previously did not consider the industrial base to be a major issue, but "as we ramp up to fight a real war, the industrial base is becoming a genuine concern."

Daniels noted that "We have to understand our role in winning this fight. At the same time, we're part of an economic system that has to remain healthy. The commercial side of that industry isn't healthy right now." He noted that this problem is "flowing down to our suppliers. We're going to feel that sickness flow its way through the entire sector."

Pierre Chao, Managing Director, Credit Suisse First Boston, pointed out that the defense industry must compete with every other industry for capital. "There is no right to have dollars flow into this industry." He noted that acquisition rules are a primary reason why capital has been leaving this industry. "The returns aren't there. There is a danger of this industry becoming a technological ghetto." Daniels also noted that "We're competing for resources with people who are in a different economic paradigm. We all go back to the 'Street' for our resources."

Industry CEOs/Presidents from left: Gerald Daniels, President and CEO, Military Aircraft and Missile Systems, The Boeing Co.; Mark Ronald, President and CEO, BAE Systems North America; Vance Coffman, Chairman and CEO, Lockheed Martin Corporation; and Aldridge.

Several speakers argued that export controls have a negative impact on the defense industry. Coffman said that a recent review of the International Trade in Arms Regulation (ITAR) "suggests that a low percentage is really national security. Reducing the list would save a lot of time." Daniels stated that ITAR regulations are forcing his company to push military derivatives of the 767 to a separate production line.

Acquisition and Defense Industry Workforce

Several speakers noted that the "dot.com crash" may have temporarily relieved some of the most serious workforce recruitment and retention problems. As the opportunity to make millions in Internet startups has receded, the stability of more traditional employment may look more attractive. Nevertheless, both the Federal Government and industry are facing the difficult problems of an aging workforce and difficulty in attracting, training, and motivating new workers.

Coffman stated that "what happened on Sept. 11 is an impetus for a lot of people who left the industry to say, 'Maybe I made a mistake and maybe the defense industry is the best place to be working from the viewpoint of interesting programs, future, and what's good for the country.'" However, Mark Ronald, President and CEO, BAE Systems North America, suggested that DoD and defense industry's need for people with expertise in electronics and information technology will remain high, and the commercial downturn is likely to be temporary. "There's going to be another crunch coming. It could take a couple of years for those industries to recover; but they will recover, and there will be huge competition for those people."

Urias stated that he is "very concerned about losing the experience base" as a large portion of the government acquisition workforce retires in coming years. He cited several accelerated training programs being used within his command and emphasized the importance of providing training and responsibility. "If you don't empower your people, you don't grow your people."

Harrington also noted that "a lot of expertise" within DCMA is going to retire in the next few years and observed that the problem of workforce retirements is magnified by the 270-day average cycle time to hire new employees. Riemer suggested that expert systems are needed to document best practices and "give us the tools to do the work in the next five years" as the workforce retires.

Interoperability

There was widespread agreement that coalition forces will fight the present conflict, and others in the future, and that this will place a higher premium

Service Materiel/Systems Command Commanders from left: Army Lt. Gen. Roy Beauchamp, Deputy Commanding General, Army Materiel Command; retired Air Force Gen. Larry Welch, President and CEO, Institute for Defense Analyses; Navy Vice Adm. Joseph Dyer, Commander, Naval Air Systems Command; Air Force Gen. Lester Lyles, Commander, Air Force Materiel Command; and Navy Vice Adm. George Nanos Jr., Commander, Naval Sea Systems Command.

on interoperability. Daniels stated "that the country will fight in coalition is the rule. Fighting in coalition and doing it effectively implies a certain degree of interoperability that does not today exist. In fact, it doesn't exist between Navy aircraft and Air Force aircraft. This has to change. It isn't enough to say, 'Okay, this will be the American standard and everyone must comply.' It also implies that a degree of industrial collaboration is needed. We need to identify and sweep away barriers so we can strengthen the collaboration."

Lyles noted that experience in the air war in Kosovo showed that "All of the platforms worked very well, but one problem we noticed was linkage between platforms and especially data linkage."

Conference Wrap-up

The conference closed with a two-hour Q&A session with the SAEs, moderated by Wynne. At the conclusion of the conference, Wynne thanked the audience for their participation and said that the discussions during the conference would be of great assistance to AT&L in shaping future acquisition initiatives.

Editor's Note: The author welcomes questions and comments on this article. Contact him at *LReed@ida.org*.

For information on past or upcoming PEO/SYSCOM conferences or workshops, refer to the DSAC Web site at *http://www.acq.osd.mil/dsac/*.

Acquisition Initiatives – Reaching the Workforce –

Results of the 2000 Survey of the Defense Acquisition Workforce

Do you want to know the impact of acquisition initiatives on the workforce? The Deputy Under Secretary of Defense (Acquisition Initiatives) Web site at *http://www.acq.osd.mil/ar/aws2000/default.htm* contains the results of Defense acquisition workforce responses on how acquisition initiatives impact their jobs. Links at that Web site further direct users to the following categories:

Survey Interpretation: Summarizes the overall findings of the survey.

Initiatives Relevance: Compares the relevance of initiatives between the 1998 and 2000 surveys.

Initiatives Impact: Compares the impact of initiatives between the 1998 and 2000 surveys.

Management Support: Reports on the perceived attitude of acquisition workforce management.

Management Posture: Management's orientation toward change.

Outcome Measures: The extent to which acquisition managers are adopting outcome-based performance management systems.

Customer Orientation: The customer focus of acquisition management.

Employee Satisfaction: Overall perception of current and expected job satisfaction.

Knowledge Management: The defense acquisition communities' focus on knowledge management practices.

Workforce Demonstration: Compares the responses to six selected questions from both Acquisition Workforce Demonstration respondents and those who are not in a demonstration project.

Acquisition Initiatives Feedback, Management Support Feedback, and Job Satisfaction Feedback: Links to feedback forms.

Defense Acquisition University-George Mason University School of Public Policy Strategic Partnership

Master of Science Degree in Professional Studies in Transportation Policy, Operations & Logistics

Under a new educational strategic partnership between the Defense Acquisition University (DAU) and George Mason University (GMU), GMU degree programs will now use education, training, and experiences of Department of Defense (DoD) Acquisition, Technology, and Logistics (AT&L) workforce members, who are certified in at least one of the AT&L career fields, in conjunction with graduate courses offered by GMU's School of Public Policy.

The programs will be available to any member of the DoD-wide AT&L workforce who holds a bachelor's degree from an accredited university; has achieved, at a minimum, Level I Certification in at least one DAU career field; and is admitted to a GMU degree program. Depending on the American Council on Education (ACE)-certified DAU courses taken, the DoD AT&L workforce member will receive up to nine semester hours of credit toward the degree programs.

For more information on the GMU program, contact Jonathan L. Gifford, Director, Master of Science in Professional Studies, Transportation Policy, Operations & Logistics, School of Public Policy.

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DEPARTMENT OF DEFENSE NEWS RELEASE

DoD Releases Selected Acquisition Reports

The Department of Defense has released details on major defense acquisition program cost and schedule changes since the September 2000 reporting period. This information is based on the Selected Acquisition Reports (SARs) submitted to the Congress for the Sept. 30, 2001, reporting period.

SARs summarize the latest estimates of cost, schedule, and technical status. These reports are prepared annually in conjunction with the President's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are rebaselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operations and maintenance. Total program costs reflect actual costs to date as well as anticipated costs for future efforts. All estimates include allowances for anticipated inflation.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (September 2000) was $782,472.2 million. After subtracting costs for a completed program (SSN 21 Seawolf/AN/BSY-2 Seawolf combat system) and adding costs for a reinstated program (MCS) from September 2000, the adjusted current estimate of program acquisition costs was $770,593.7 million. There was a net cost increase of $5,850.1 million during the current reporting period (September 2001). For more details on cost changes and other SAR information, see the following web links:

- **Summary Table** at *http://www.defenselink.mil/news/Dec2001/d20011207sarsummary.pdf*
- **SAR Program Acquisition Cost Summary in Dollars** at *http://www.defenselink.mil/news/Dec2001/d20011207costsummary.pdf*
- **Acronyms** at *http://www.defenselink.mil/news/Dec2001/d20011207acronym.pdf.*

Editor's Note: This information is in the public domain at *http://www.defenselink.mil/news*.

Conversations with the DACMs

Their Views and Visions for the 21st Century Acquisition Workforce

MARCIA RICHARD

Today is definitely an exciting time for the Acquisition Workforce (AWF)! As a Department of Defense (DoD) acquisition professional, I can personally attest that the world of acquisition we once knew is continuing to change at a very rapid pace. Some of the main forces driving these changes are: new and different requirements; improved technology; fewer dollars; and a smaller, aging workforce.


Carolyn Bean-Willis
Air Force Associate DACM

At first glance, it almost seems like too much to manage, but the senior leaders of Acquisition Career Management are optimistic, hopeful, and comfortable with the progress we are making during this time of constant flux. All acknowledge, however, that actions on varying levels will be needed to address the newly identified needs and requirements—as well as those requirements not yet identifiable—that will enable acquisition professionals to better perform their jobs in support of the warfighter.

New Job, New Challenges, New Responsibilities

Two months ago I started a new position in the Office of the Secretary of Defense, Acquisition Education, Training and Career Development (AET&CD) as a Program Analyst and Liaison to the Defense Acquisition University (DAU), where I previously worked as a Procurement Analyst and Professor of Contracting. Both AET&CD and DAU are a part of the Acquisition Initiatives (AI) Office under the leadership of Donna Richbourg, Director, AI.

Having spent the past nine years of my career working in education and training, I felt somewhat comfortable that I understood what education and training meant and what was required as it pertains to acquisition. I was a little less confident in my understanding of exactly what career management is within the acquisition community.

I believe it is imperative that employees fully understand the mission, structure, and dynamics of an organization to make a contribution and hopefully, a positive difference. Based on that belief, I set out to research the *career management side* of my organization and share my findings with those who, like me at the time, may not be fully confident they understand Acquisition Career Management and all it encompasses. This article shares the results of my research.


Dr. James McMichael
DoD DACM


Lt. Gen. John Caldwell, USA
Army DACM

As background, I re-familiarized myself with **The Defense Acquisition Workforce Improvement Act (DAWIA)**, Sub-

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Photos by Richard Mattox

chapter 1, **General Authorities and Responsibilities**. As stated in **Section 1705, "Directors of Acquisition Career Management in the Military Departments"**:

> " There shall be a Director of Acquisition Career Management for each Military Department within the Office of the Service Acquisition Executive to assist the executive in the performance of his duties under this chapter. The Secretary of the Navy, acting through the Service Acquisition Executive, may appoint separate directors for the Navy and Marine Corps."

Also stated in Subchapter 1, **Section 1703, "Director of Acquisition Education, Training, and Career Development"**:

> "The Under Secretary of Defense for Acquisition shall appoint a Director of Acquisition Education, Training, and Career Development within the Office of the Under Secretary to assist the Under Secretary in the performance of his duties under this chapter."

In addition, **Section 1707, "Personnel in the Office of the Secretary of Defense and in the Defense Agencies,"** states:

> "(b) Management—The Director of Acquisition Education, Training, and Career Development, appointed under Section 1703 of this title, shall serve as the Director of Acquisition Career Management for the Office of the Secretary of Defense and for the Defense Agencies."

Better informed, I set out to talk to the people who are accountable for the challenging responsibility of career management for the AWF, so that I might gain insight into their views and visions. Toward that end, I scheduled interviews with the Directors of Acquisition Career Management (DACMs) for the Military Services and DoD.

William "Bill" Hauenstein
Navy DACM

Navy DACM

First, I visited William "Bill" Hauenstein, Director of Acquisition Career Management, Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition). Hauenstein began by speaking of the tremendous impact of redefining *who* actually makes up the AWF. He discussed the assimilation process that Department of the Navy (DON) and the other Services are currently undergoing to complete the identification and count of the newly defined workforce.

To facilitate that task, the Services are using a new methodology (identification model) for defining the AWF. The model builds on the Packard Commission algorithm of using occupational and organizational data for identifying the workforce.

According to Hauenstein, the number of DON personnel covered by the DAWIA legislation has grown as a result of the new methodology.

He also mentioned the need to enhance the acquisition personnel data management capability, the need to identify certification requirements for new members of the AWF, and ensuring that these individuals meet the certification requirements within specified timeframes.

Hauenstein shared that the Chief of Naval Operations has stated that the civilian workforce is a critical element of the DON manpower team, and that increased emphasis on how to reshape the workforce of the future is a high priority. He added that although the DAWIA model is not the only viable model to use in career development, it is certainly one that works and should be considered.

"Because we can not predict what's going to happen," Hauenstein stated, "we can not adopt any one system … we must create systems with enough agility and flexibility to accommodate our changing and growing needs."

He noted that with proper planning and precautions—which DON is developing and implementing—they will be prepared for the exciting, yet challenging times ahead.

Hauenstein concluded by saying that this Administration is dealing with significant change, exacerbated by the events of Sept. 11; and that John Young, the Assistant Secretary of the Navy (Research, Development, and Acquisition), by recognizing this need for change early on, is shaping the DON AWF of the future.

Air Force Associate DACM

Carolyn Bean-Willis, Associate DACM for the Department of the Air Force, was the subject of my next interview. Willis spoke of several initiatives that she—under the guidance of Darleen A. Druyun, Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management—would like to see implemented throughout the Air Force.

Willis would like to see the training required for acquisition certification tailored to include Just-In-Time and Re-

quirements-Based Training, so that training is based more closely on an individual's needs. The Air Force acquisition community, she emphasized, wants to focus more on results, not processes, and expects Evolutionary Acquisition to be the tool most used to put capability into the hands of the warfighter quickly.

Willis explained that the broader Air Force strategy is captured in a new initiative dubbed *Agile Acquisition*. Its thrust is to pare down acquisition cycle times and create an acquisition culture that promotes innovation and managed risk. Agile Acquisition, she added, is underpinned by six new *Lightning Bolts,* designed to be a road map for change. Of particular interest, Willis noted, are Lightning Bolts No. 3 and No. 4, which focus on changing the mindset of the community to promote the change inherent in adopting Agile Acquisition.

In fact, she added, the Air Force plans to establish a *Change Culture University,* designed to create and nurture innovation in the Air Force acquisition community. The idea is to expose the AWF to innovative ideas and approaches within the Air Force, DoD, and Industry. Because the Air Force is already an exciting place to work, Willis believes introducing new practices as well as improving upon some of the existing ones, will help attract and retain AWF personnel.

"Mrs. Druyun is a superb leader," she said. And one of the things Willis admires most is Druyun's philosophy on leadership, which is "… to help people become leaders, you must let them try out leadership." This is something, Willis pointed out, "that Mrs. Druyun practices and tries to cultivate throughout the Air Force acquisition workforce as an innate part of career development and management."

Army DACM

Army Lt. Gen. John Caldwell, Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) is new to his position but already has some definite ideas of what he wants to see happen in Acquisition Career Management within the Department of the Army.

Caldwell wants to ensure that the primary concern of the AWF is the warfighter—and that the warfighter *knows* that to be true.

"We must create excitement, by doing exciting things," Caldwell stated. "Then we must do a better job of advertising and marketing in our recruiting efforts."

He believes that the unfortunate attacks of Sept. 11 "shined the light" on public service, and although a horrible incident, it did help stop a lot of unwarranted public-service bashing.

DoD DACM

Last, I spoke with Dr. Jim McMichael who is wearing two hats as both the Director of Acquisition Education, Training, and Career Development and Director of Acquisition Career Management for the Office of the Secretary of Defense and for the Defense Agencies.

McMichael stated that "…in addition to what most people think is the primary role and responsibility of the DACM—managing training quotas and travel expenses—they must also identify resources and allocate them properly to effectively perform their duties."

He explained that the DoD DACM office is also responsible for developing policy, such as the Continuous Learning Policy, and managing programs such as the DoD Intern Program.

"Yes, I believe we are facing a crisis," McMichael stated. "We are experiencing the most dramatic demographic change in this century."

He believes, however, that DoD has some innovative recruiting initiatives. One is the DoD Civilian Acquisition Workforce Personnel Demonstration Project, which links pay to performance and the individual's contribution to the organization's mission. Another is the Human Capital Strategic Plan, which develops and implements a comprehensive needs-based human resource plan for the civilian AWF. McMichael believes DoD is definitely heading in the right direction, but acknowledges we still have work ahead.

AWF of the Future

Although all of the DACMs do not share the same level of concern regarding the possibility of an aging AWF crisis, each acknowledged that some action must be taken to improve our recruiting, hiring, and retention practices for the AWF of the future. During my conversations, the DACMs expressed slight differings of opinion as to which career field(s) should be targeted for intense recruiting, but those differences understandably appeared to be mission-driven.

Capitalizing on my visits with the DACMs, I shared a recruiting initiative I am working jointly with DAU—the DoD AT&L Student Education, Employment, and Development (SEED) program. This program is specifically designed to provide non-DoD workforce and college/university students with opportunities to acquire knowledge and skills to qualify for employment and obtain certification in the DoD AT&L workforce.

All were supportive of the concept and consider it a viable option where DoD experiences difficulty in recruiting for certain DAWIA-sanctioned career fields.

Assurance Renewed

Continuing to think of new and innovative ways to attract "youngsters" into the DoD AWF is and will continue to be a challenge and concern that must be addressed. Senior leaders in charge of and responsible for Acquisition Career Management are indeed not only aware of, but actively addressing the issues. I am reassured that our AWF of the future will be highly qualified, motivated, and ready to perform their complicated and complex jobs in support of the warfighter.

Editor's Note: Richard welcomes questions or comments on this article. Contact her at *Marcia.Richard@dau.mil*.

DEPARTMENT OF DEFENSE NEWS RELEASE

Navy Area Missile Defense Program Canceled

Edward C. "Pete" Aldridge Jr., Under Secretary of Defense for Acquisition, Technology and Logistics, announced today the Navy Area Missile Defense Program has been cancelled due to poor performance and projected future costs and schedules.

The cancellation will result in a work stoppage at some contractor and governmental field activities.

The cancellation came, in part, as a result of a Nunn-McCurdy Selected Acquisition Report breach of the existing program. A Nunn-McCurdy unit cost breach occurs when a major defense acquisition program experiences a unit cost increase of at least 15 percent. If the unit cost increase is at least 25 percent, the Secretary of Defense must certify that:

- The acquisition program is essential to the national security.
- There are no alternatives to the acquisition program that will provide equal or greater military capability at less cost.
- The new estimates of the program acquisition unit cost or procurement unit cost are reasonable.
- The management structure for the acquisition program is adequate to manage and control program acquisition unit cost or procurement unit cost.

In the case of the Navy Area Missile Defense Program, the program acquisition unit cost and average procurement unit cost exceeded 57 percent and 65 percent, respectively. The Department has decided not to certify the program as currently configured.

"It's unfortunate we've reached this point," said Aldridge, "but certification was impossible. We are still in pursuit of a sea-based terminal phase capability as part of the overall missile defense strategy, but we must now move forward from here."

Over the next several months, the Ballistic Missile Defense Organization will address sea-based missile defense as part of its plans to develop an integrated ballistic missile defense system that provides a layered defense against ballistic missiles of all ranges.

The following major defense contractors are affected by the action: Raytheon, Tucson, Ariz.; Lockheed-Martin, Moorestown, N.J. and Middle River, Md.; United Defense, Baltimore, Md. and Minneapolis, Minn.; Orbital Sciences, Dulles, Va. and Chandler, Ariz.; and L-3 Communications, New York, N.Y. In addition, major governmental field activities affected are Naval Surface Warfare Center (NSWC), Dahlgren, Va.; NSWC, Port Hueneme, Calif.; The Applied Physics Laboratory, Johns Hopkins University, Laurel, Md.; and the Massachusetts Institute of Technology, Lincoln Laboratories, Lexington, Mass.

A fact sheet on the Navy Area Missile Defense Program can be found on the Web at *http://www.acq.osd.mil/bmdo/bmdolink/pdf/aq9902.pdf*.

Editor's Note: This information is in the public domain at *http://www.defenselink.mil/news*.

Service Contract Management

No Place For Amateurs

SUSAN J. HARVEY

Why do some service contracts work well and others do not? Why are the costs of some contracts high while other similar contracts are not? Why are some contractors responsive to government needs while others are not? Why are these questions even being asked?

Answers to these and other contract-related questions become more important to Department of Defense (DoD) managers as the Military Services rapidly move to streamline and modernize their forces. Concurrently, the Military Services are exploring promising cost containment initiatives such as competitive sourcing and outsourcing services and functions to the private sector, including entire functions and programs that have been traditionally performed in-house. On the positive side, managers can influence the answers to their questions on contracts within their control. This article addresses how a DoD manager can navigate the maze and ensure successful delivery of services through contracting.

Service Outsourcing in DoD

The DoD has become increasingly interested in using the private sector to provide programs that are peripheral to the core mission of the Service, while retaining those missions in-house that require performance by government civil service or uniformed personnel. Thus, a vast array of services are being subjected to competition throughout the service support sector, including personnel, administrative, engineering, logistics, base and post operations, training, and related support functions in all Military Services. Budget constraints are driving this trend as managers seek to modernize systems while continuing to provide services at lower costs.

THE MANAGEMENT OF SERVICE CONTRACTS IS A DIFFICULT CRADLE-TO-GRAVE ENDEAVOR THAT IS INCREASINGLY AFFECTING MILITARY FORCE READINESS AT ALL LEVELS AROUND THE WORLD.

Harvey *is the Director of the Human Resource XXI (HRXXI) Business Unit in the Office of the Assistant Secretary of the Army (Manpower and Reserve Affairs), where she manages the HRXXI Century Contract—a $1.5 billion government-wide acquisition contract that provides customers with access to a wide range of outsourced Human Resources (HR) management services. She has served as the Contracting Officer's Representative since 1990 and is responsible for the management and oversight of all contract activities. Harvey holds a B.A. from Catholic University in Washington, D.C., and an M.A. from Boston University.*

The interest in outsourcing has not abated with the change in administrations. The new Secretary of the Army, Thomas White, stated in a June 12, 2001, *Media Round Table* that the Army, "should seek to outsource (all) non-core activities" where better value could be provided at a lower price.

Maybe the key question is, "Why are these questions even being asked?" While the military has been contracting-out services and projects since the birth of the country, only recently has outsourcing started to affect the daily lives of mid-level DoD employees. This change emerged concurrently with the downsizing of the military following the Persian Gulf War when large numbers of DoD civilian employees lost their jobs, were transferred to other agencies, or were not replaced after buy-out, resignation, or retirement.

Table GPS1 at *http://www.fedscope.opm.gov*, published by the Office of Personnel Management, contains some eye-opening statistics. By OPM's accounting, the DoD civilian workforce fell from 816,621 in September 1995 to 660,212 in March 2001—a 19 percent reduction in force. What happened to the functions performed by these employees? Surely not all the lost jobs were production functions as part of a manufacturing process that was no longer required. Some, perhaps many, of the functions these employees were performing were subsequently contracted out by either installation commanders or those responsible for performance of a particular function.

Paul C. Light documents the growth of service contract work (as opposed to contracts that produce products) in a 1999 book, *The True Size of Government,* where he found that the service-contract workforce grew from 51 percent of the total contract workforce in 1984 to 71 percent in 1996. This seemingly represents a dramatic shift toward the growth of the white-collar contract workforce supporting the Federal Government. Furthermore, Light predicts that service contracts are likely to increase over time.

Are Outsourcing Initiatives Outstripping Capability to Respond?

Increasingly apparent to those closest to the change—the contract managers on the front line—is that service contract growth is placing new demands on the capacity of the senior military leadership. In the past, service contracting activities were largely within the finance, accounting, or supply organizations and were considered essentially logistics functions. Today, whole slices of the infrastructure of military posts, bases, and camps are outsourced as well as operational control of training facilities, repair depots, and even activities supporting troops in combat zones. Like it or not, senior military leaders are being drawn into contract operations and procurement decisions. Contract management has become a critical factor in force readiness and becomes more so every day. So what can the leadership and contract managers do to remain in sufficient control to perform mandated duties?

A Necessary First Step—Getting Smart

The increasing reliance on the contractor workforce has identified weaknesses in our ability to rapidly and efficiently outsource mission-essential functions. One such weakness—the lack of business acumen within the DoD—is highlighted in a recent award-winning essay written by Industrial College of the Armed Forces student, Randall J. McFadden. His essay, "Case Study of Complex Business Management for Competitive Sourcing," was awarded the National Contract Management Association-Industrial College of the Armed Forces (NCMA-ICAF) Award for best research paper on Competitive Sourcing in June 2001.

McFadden addresses the difficulties associated with getting service-contract competitions underway in the DoD, and identifies the leading culprit as the lack of business management knowledge and training among all involved in service outsourcing projects. His criticism does not extend to the management of products traditionally acquired from industry such as weapons systems, supplies, and major equipment, but to the service areas that are being subjected to outsourcing competitions for the first time. Such projects are affecting commanders at virtually every installation and headquarters in the military.

McFadden recognizes in his essay that, "Program management of competitively sourced activities may not have the glitter and glory of traditional weapons system project management, but it influences a larger part of the defense budget, touches more of the force, and impacts more and more of our capability." What solution does McFadden propose? His solution is to eliminate cultural, process, execution, and training barriers and treat outsourcing as a complex business management process that combines functional expertise with business sense and is fully integrated into the command structure.

In a recent article by Steven Kelman, published in the July 30, 2001, issue of *Govexec.com* (*www.govexec.com/dailyfed/0701/0700/ebird.htm*) and reprinted in the Armed Forces Information Service (AFIS) *Early Bird*, Steven Kelman identifies another weakness in the outsourcing process, namely, the tendency to de-emphasize the importance of the contract management function itself. He offers a strong argument for establishing contracting management as a core competency for organizations deeply involved in contract work.

In addressing this issue, Kelman states, "A leadership job in contract administration is not a consolation prize…" It

requires "strategy and goal-setting; inspiring those doing the work, including contractors, with enthusiasm and public purpose…" and a host of other attributes more usually associated with senior leadership." He summarizes this concept by stating that, "the responsibilities of a contract administration leader are analogous to those of a senior executive, not a first-line supervisor or middle manager."

The Role of the Contracting Officer's Representative

Kelman's observation raises another question—what exactly are the responsibilities of a contract manager? The Federal Acquisition Regulation (FAR) 37.103 offers general guidelines on the responsibilities of a Contracting Officer on service contracts. The DoD FAR Supplement (DFARS) 201.602 authorizes Contracting Officers on DoD contracts to designate qualified personnel as their authorized representative to assist in the technical monitoring in the administration of a contract. This individual—the Contracting Officer's Representative (COR) —exercises authority specifically delegated in writing by the Contracting Officer.

A typical letter to a COR from a Contracting Officer may authorize the following actions:

> "Assure that the contractor performs the technical requirements of the contract in accordance with the contract terms, funding, conditions, and specifications.
>
> Perform, or cause to be performed, inspections …and to require the contractor to correct all deficiencies.
>
> Maintain liaison and direct communications with both the contractor and the contracting officer."

Usually, a limitations clause in the delegation letter prohibits the COR from taking any action that may be construed as changing any contract provisions such as modifying contract or delivery order schedules, funds, or scope of work. Another provision routinely included makes it clear that the Contracting Officer is the only authorized individual that can modify any contractual agreement, commitment, or modification that involves price, quantity, quality, or delivery schedule and makes the COR liable for any deviation from the delegated authorizations.

In actual practice, the COR is the primary functional representative of the government in the execution of the service contract, exercises authority over the performance evaluation of the contractor, and is the primary day-to-day point of contact for the contractor's program manager. On service contracts, the COR routinely is the originator of the contract requirement, shapes the contract through the competitive process to award, is responsible for funding the contract, evaluates the performance of the contractor for the chain of command and Contracting Officer, and influences decisions on the continuation or non-continuation of the contract. These are not insignificant responsibilities because collectively they add up to the fact that the COR is ultimately the key to the success or failure of a contract.

Despite this, the typically ambitious government employee does not aspire to become a COR. Why? Well, for a variety of reasons. No established career track for a COR exists within the Federal Civil Service; no standards are set for performance; and obtaining training—which is often an item managers fail to budget for—is very much dependent on the employee's own initiative. In practice, one often becomes a COR by happenstance. This has to change, and it should change quickly because contract management is becoming an essential function for the military.

The COR as an Important Part of the Solution

As CORs gain increased responsibility for providing significant portions of command or installation support services, they are displacing traditional senior civilian and military leaders who formerly managed functions performed in-house—functions now outsourced to the private sector. For example, with the recent outsourcing of large-scale installation administrative functions in both the Army and Navy, no longer is it uncommon to find a COR responsible for administrative support functions previously handled by a colonel or GS-15 division chief at medium-sized installations, supervising over 100 government employees.

The prudent commander will exercise the same amount of care in selecting a COR for such a large project as would be taken in selecting a manager for an in-house staff. Not only are basic leadership and employee motivation skills required for the job, but the COR also must bring considerable cross-agency skills such as financial, acquisition, and programmatic management as well as knowledge and experience of contract management and administration skills to the table. Also, a finely developed sense of interpersonal communications and diplomatic acumen are required to work with Contracting Department personnel who frequently have other priorities and do not face the functional problems that CORs experience and solve on a daily basis.

What should a military leader look for in selecting a COR to manage a critical part of the command's mission? Here are several ideas.

Experience

The ideal COR will bring a wide array of experience to the table, preferably including functional expertise in the technical area being managed. In the contract environment today, the Contracting Officer and the related contracting superstructure provide sufficient oversight on regulatory matters requiring specific knowledge of the FAR, DFARS, and legal issues of the contracting world. The COR is, and should be, the Contracting Officer's interface with the day-to-day technical work performed on the contract.

For example, the COR of a logistics function would ideally have sufficient experience with the standards of performance, the specialized vocabulary as-

sociated with the work, and the broad base of functional knowledge to successfully communicate with the contractor. Similarly, the COR of an engineering function would have the level of experience or education necessary to provide quality assurance over the desired product or service.

The experience level required in a COR should be directly proportional to the scope and complexity of the operation. Ideally, the career path of a COR should include several major components that include: experience in the functional area commensurate with the project; cross-industry experience in financial management and business administration at a level commensurate with the project; an apprenticeship under an experienced veteran of the contracting business so that the individual will have sufficient knowledge of COR functions and related problem-solving skills before assuming responsibility for a first job as a COR; and prior experience as a government contractor at the managerial level. Prior business management experience offers substantial value to a COR as it provides the potential to avoid a costly and time-consuming trial-and-error process of learning what the business world is all about.

In short, the smart commander will seek out an individual with a strong background and experience to become a COR. An experienced contract manager is more likely to meet the complex challenge of the contract environment, exercise the control mechanisms embedded in the contract operation, perform the necessary quality assurance and risk management functions, and ensure financial accountability on the part of the contractor.

No longer is it sufficient to point a finger at the contractor when something goes wrong. If anything does go awry, the COR is responsible for introducing corrective and remedial action, including terminating the contract if that becomes necessary. On the other hand, the COR merits credit when the contractor does well. After all, contract success often depends on the COR preparing effective written specifications for the contract and exercising vigilant quality assurance and oversight of the services once the contract is underway.

THE TYPICALLY AMBITIOUS GOVERNMENT EMPLOYEE DOES NOT ASPIRE TO BECOME A CONTRACTING OFFICER'S REPRESENTATIVE ... NO ESTABLISHED CAREER TRACK FOR A COR EXISTS WITHIN THE FEDERAL CIVIL SERVICE; NO STANDARDS ARE SET FOR PERFORMANCE; AND OBTAINING TRAINING—WHICH IS OFTEN AN ITEM MANAGERS FAIL TO BUDGET FOR—IS VERY MUCH DEPENDENT ON THE EMPLOYEE'S OWN INITIATIVE.

Education

What is the appropriate education level for a COR? Education prerequisites depend upon the size and complexity of the contract and on several other factors. For a contract with substantial size and complexity, a strong case can be made that a graduate degree related to the functional area should be required. Frequently, the requirement for a graduate degree is more important on a professional services contract than for a product or manufacturing contract because of the nature of services contracts. Because a professional services contract often requires a graduate degree for the contractor manager, one should likewise be required of the COR. More importantly, a graduate degree confers an example of individual achievement that requires commitment, perseverance, and capability—all traits normally characteristic of a seasoned manager.

For a contract of lesser size and complexity, a bachelor's degree is the minimum education a commander should accept in a COR. Contract management requires mastery of many college-level concepts such as business administration principles, cost-benefit analysis, negotiating techniques, cost modeling, and understanding of the applicable law and technical regulations. Those that have not been exposed to higher education would clearly be at a disadvantage.

In addition, the well trained COR will have completed a wide-range of professional-level courses provided by the contract management community and will hold memberships in professional organizations such as the American Society of Public Administration, National Contract Management Association, or similar organizations that sponsor a Code of Ethics or professional standards as a condition of membership.

Intangibles

What other qualities should the prudent commander or senior leader look

for in a COR? Intangible qualities or skills such as patience, tolerance, perseverance, a results-oriented management style, dedication to the task at hand, and motivation will help ensure effectiveness. A finely tuned sense of patience and tolerance is almost a necessity for a COR to cope with built-in delays inherent in the contracting process. Delays are not only intentionally factored into the procurement process to discourage all but the most determined from proceeding, but also unintentional delays surface frequently and often extend into lengthy delays. To complicate matters further, lengthy delays can frequently result in loss of momentum and introduction of peripheral issues that cause loss of focus and progress.

The fully equipped COR maintains a tool bag full of personal qualities to operate effectively in an intensely regulated environment filled with bureaucratic delays, and remains focused on the goal of bringing the procurement to award. Once the contractor is on the job, the results-oriented COR remains focused on the job and vigorously protects the government's interests while motivating and enabling the contractor to achieve expected levels of performance.

In some cases, a COR may work on several contracts. In these cases, the COR should have the capability to conduct project oversight for several large, complex procurement projects in various stages of the acquisition process where activities on one project could impact other projects. Obviously, the government's best interest is not served by having a poorly prepared individual assigned to a COR position, but rather the government's best interest is served by ensuring that an individual is fully equipped to handle the responsibilities.

Some Final Thoughts

The time has long passed when government could afford to ignore contract management. It has become a serious and complex business management process of increasing importance to mission accomplishment. The management of service contracts is a difficult cradle-to-grave endeavor that is increasingly affecting military force readiness at all levels. No longer is it sufficient to rationalize poor contract performance as "the contractor's fault" when the problem is just as likely to be a defect in the contract specification, a serious mistake by the source selection board, or an unqualified COR who is unable to handle the job.

Increasingly, the outsourced function provides essential support to the mission of the command. Accordingly, standards should be set high, and contractors should be expected to meet, or preferably *exceed* the standards. In the competitive, free enterprise system that exists in our country, only the smart businesses survive, and the smart businesses are those that satisfy their customers. Ultimately, the success or failure of a business relationship between a service contractor and the government rests on the back of the COR. Successful contract performance does not happen by accident.

New or Updated DAU Pubs

Automatic Notification Now Available for New/Updated Pubs Posted to DAU's Home Page!

Are you a frequent user of the DAU Home Page? Would you like immediate notification when we update the DAU Home Page with new information, guidebooks, course schedules and materials, or new issues of *Program Manager* and *Acquisition Review Quarterly*? If the answer is yes, take advantage of our free notification service. Subscribers are under no obligation to sign up for any additional offers and may also discontinue service at any time. To sign up now, go to **http://groups.yahoo.com/group/DSMC-PUB**.

Send Us Your Suggested Research Topics

The Defense Acquisition University (DAU) is soliciting input from the Acquisition Workforce (AWF) for suggested research topics or issues to assist the AWF in achieving their short- and long-range mission goals and objectives. If you have a suggested research topic, please contact Dr. James Dobbins, DAU Director of Research, at *jim.dobbins@dau.mil*, or call 703-805-5416.

DEPARTMENT OF DEFENSE NEWS RELEASE

DoD Establishes Missile Defense Agency

Secretary of Defense Donald H. Rumsfeld announced this week the redesignation of the Ballistic Missile Defense Organization (BMDO) as the Missile Defense Agency (MDA). Consistent with the President's emphasis on missile defense, the Secretary also provided direction necessary to meet the top four priorities for the United States in this important mission area. These are:

- To defend the United States, deployed forces, allies, and friends from ballistic missile attack.
- To employ a Ballistic Missile Defense System (BMDS) that layers defenses to intercept missiles in all phases of their flight (i.e., boost, mid-course, and terminal) against all ranges of threats.
- To enable the Services to field elements of the overall BMDS as soon as practicable.
- To develop and test technologies; use prototype and test assets to provide early capability, if necessary; and improve the effectiveness of deployed capability by inserting new technologies as they become available or when the threat warrants an accelerated capability.

Elevating BMDO to agency status recognizes the national priority and mission emphasis on missile defense. The current director of BMDO, Air Force Lt. Gen. Ronald T. Kadish, will assume the title of Director, MDA. He will continue to report directly to Edward C. "Pete" Aldridge Jr., Under Secretary of Defense for Acquisition, Technology, and Logistics. The Secretary has tasked Aldridge with the responsibility of implementing his direction and will look to the Senior Executive Council for oversight of missile defense activities. Also, the full and cooperative efforts of the Military Services, Joint Staff, and Defense Agencies are essential.

The overall objectives for missile defense include: establishing a single program to develop an integrated missile defense system; assigning the best and brightest people to this work; and applying a capability-based requirements process for missile defense.

The MDA is charged with developing the missile defense system and baselining the capability and configuration of its elements. The Military Departments will procure and provide for missile defense operations and support.

Editor's Note: This information is in the public domain at *http://www.defenselink.mil/news.*

Simulation and Modeling for Acquisition, Requirements, and Training—SMART

Enabling the Transformation

BRUCE J. DONLIN • MICHAEL R. TRUELOVE

Currently, the U.S. Army has a very capable arsenal of weapons for fighting the last war. But the Army needs to be prepared to fight the wars of the future, where the battlefield will be uncharacteristically complex and unpredictable. To meet that challenge, the Army needs to transition from our current heavy-based force to a force that is responsive without loss of lethality. We need an Army that is capable of deploying a brigade combat team in 96 hours, a division in 120 hours, and five divisions in 30 days.

The Army of the future needs to be agile, with the capability of maneuvering forces in and out of warfighting operations. We need an Army that is versatile and capable of rapidly transitioning from a peacekeeping force to a combat force as the situation may dictate. That force must be lethal and survivable, which will require incorporating the latest in technology. Certainly, the Army must be sustainable, with a reduced logistical footprint that can still adequately supply the forces in combat. Although the U.S. Army transformed itself several times in our nation's history as the need arose, one thing that makes the Army's current transformation particularly unique is the timeline in which it must be done.

Army Transformation is clearly on display as Army Sgt. Joseph Patterson models the Future Warrior Vision outfit for members of Congress and their staffs at the Rayburn House Office Building in Washington, D.C. The suit he demonstrated May 3, 2001, features body armor and integrated systems for cooling and heating, stress monitoring, and communications.
Photo by Army Sgt. 1st Class Kathleen T. Rhem

The new Army Light Armored Vehicle III variant equipped with a 105mm gun on display at the Pentagon May 17, 2001. As part of Army Transformation, and if all goes well with the system, the Army hopes to buy 2,131 of the vehicles to outfit six brigades. Officials said the first brigade could be operational by spring 2003, with initial operating capability by November 2003.
DoD photo by Gerry J. Gilmore

Implementing New Ideas

The Transformation Campaign Plan calls for beginning the transition from the Interim Force to the Objective Force by 2008. A critical enabler that will advance the Army's transformation within this time period is the Simulation and Modeling for Acquisition, Requirements, and

Donlin *is a Senior Analyst with Science Applications International Corp. (SAIC), supporting the Army Model and Simulation Office (AMSO) with its transition to SMART. He is a retired Army officer with a B.A. in Engineering from the U.S. Military Academy, West Point, N.Y.* ***Truelove*** *is a Senior Analyst with SAIC, also supporting AMSO with transition to SMART. He is a retired Naval officer with a B.A. in Mathematics from the University of South Carolina and an M.S. in Operations Analysis from the Naval Postgraduate School.*

Training (SMART) concept. Designing the Objective Force through SMART will provide the warfighters with systems of greater military value than if we continue doing business as usual. The concept of collaborative environments allows all stakeholders to contribute during the "Concept and Technology Development Phase" and the "Systems Development and Demonstration Phase," when inputs have the greatest impact. SMART also affords the opportunity to design across all fundamental areas rather than at the expense of one or two. Bringing the end user into the

collaborative environment helps to ensure that the design meets the needs of the soldier. Mistakes can be made, doctrine changed, and new requirements identified long before we put soldiers in harm's way.

Collaborative development of new systems in a virtual world will allow us to develop more virtual prototypes and allow more testing in a virtual environment. Many more simulations can be run, and more designs and concepts tested through models and simulations than can be done on a test range. Tests can also be conducted in synthetic environments for conditions that are more harsh and extreme than at our test ranges, thereby providing more insight into the weapon's capability. This is not to say that Modeling and Simulation (M&S) will replace all hardware testing, but by doing more testing in the virtual environment we can ensure that our hardware tests are more successful and less costly.

M&S vs. SMART

The military has obviously been doing M&S for a long time—and doing a lot of it. What sets the SMART concept apart? The difference between SMART and just "doing a lot of modeling and simulation" is very clear. Read carefully the SMART Vision, as developed by senior Army leaders in August 1999:

> "Be a world leader in M&S to continuously improve Army effectiveness through a disciplined, collaborative environment in partnership with industry, government, and academia."

The difference between the old way of using M&S and the SMART methodology is in the term "collaboration." To help understand the difference, we need to know how SMART got to where it is today.

Origin of SMART

SMART has its origins in a 1995 DoD initiative headed by Dr. Patricia Sanders, former Deputy Director, Test, Systems Engineering, and Evaluation. Her new approach to acquisition was called Simulation Based Acquisition (SBA) to differentiate it from the traditional approaches to acquisition and to emphasize its reliance on the tools and processes made possible by advances in simulation technology. Ellen M. Purdy, serving at the time as an action officer within Office of the Assistant Secretary of the Army for Research, Development and Acquisition (ASA-RDA), was one of several people who analyzed Dr. Sanders' new strategy. Based on her years of experience as a lead project engineer at the Belvoir Research, Development, and Engineering Center (RDEC), she realized the significant effect such an approach would have on acquisition.

The concept of SBA for the Army was a good start, but it needed to be expanded to specifically include the acquisition, requirements, and training communities. Thus, the Army's version of SBA became SMART. Restricting the use of M&S to just an integrated approach for functions traditionally classified as acquisition ignored other critical processes. An integrated environment was needed where all the functions—from requirements analysis and concept generation through development, testing, and procurement to training and support—could collaborate through the use of models and simulations. In the past, these stakeholders had developed and used their own M&S in a stovepiped fashion, in many cases duplicating efforts that produced costly redundancies.

Collaborative Environments

With the advent of increasingly sophisticated technologies, the time had finally come when a concept such as SMART could be implemented. Thanks to the Internet, computers could be networked to allow players across the country to collaborate on the development of new requirements, doctrine, weapons systems, and training devices. It was now possible to take a concept and develop it within a virtual environment. Today's real-world budget, regulatory, and resource constraints, however, made this a challenge; nevertheless, with the ever-increasing power of the Digital Age, the means now exist to create the collaborative environment envisioned in 1997. It is now possible for all players in the Army modernization process to work collaboratively on the same models throughout the developmental process. Through the collaborative environment, all players can work with the warfighters and engineers to optimize the end product across all the functional processes.

Employing a collaborative environment does not mean that each player must use the same tools. Rather, through the use of standards and appropriate interfaces, each community can use the models and simulations most advantageous to meet its specific needs. Through the distributed network, the effect of each attribute of the system can be assessed across all communities, and a final design reached leading to the most effective and efficient doctrine, training device, or weapon system.

While the technology is available to achieve the SMART Vision, a cultural change is required—a cultural change from the traditional way of doing business in the Army. No longer can we afford for each community to develop its own synthetic environments, terrain, and threats. We cannot afford to pay for duplicative sets of models to conduct analysis or do testing, and pay for still other sets of models for training. The Army pays multiple times for models and simulations that have the same functionality. Now—on the eve of the new Objective Force—is the time for the Army to make the required cultural changes. The new way of doing business is not only a cost-efficient way of developing, buying, and using models and simulations, it is the efficient approach to achieving the Objective Force within the established timelines and budget constraints.

Stakeholders

Since all stakeholders need to be a part of a SMART collaborative environment, let us begin with the logisticians. By including logisticians as part of the collaborative environment, sustainability can be incorporated into the Objective Force as a design parameter rather than waiting until the system is fielded to determine how it will be sustained. The logistician's role is essential in making sure that the new force is responsive by "designing in" sustainability factors. The logisticians can also make recommendations on how to minimize the number of spare parts needed, and make design recommendations so that the soldier in the field can accomplish the bulk of the maintenance. In fact, the logistician may be able to develop an entirely new supportability concept for the new system, rather than forcing it to conform to the traditional concept that may not be optimal. The logistician can make important inputs into a new system's design to ensure that the system is capable of being transported on a platform as small as a C-130, thereby making the Objective Force more agile.

Closely tied to the logisticians are the cost estimators. The Army needs to look at coupling the costing tools to the components of the systems design so that life cycle costs can be performance-based and used as a more reliable factor in design trade-offs. New costing analysis tools may need to be developed to incorporate emerging and cutting-edge technologies.

Including the intelligence community in the collaborative environment will ensure that the new systems are modeled to be survivable against dynamic and diversified world threats. The intelligence community provides the credible input on potential enemy capabilities so that systems can be designed to not only counter the opposing force, but also out-perform them. Because today's technology allows the collaborative environment to be adaptive, the latest threats can be quickly incorporated to ensure the survivability and lethality of the new systems.

With the help of the Command, Control, Communications, Computers and Intelligence (C4I) community, the collaborative environment can ensure that the systems of the future are truly system-of-systems designs. This will contribute to a more versatile and responsive force by not only allowing all Army units—down to the individual soldier—to effectively communicate with each other, but also allowing joint and coalition units to also have a common operational picture. To achieve that end, the C4I community must also help us address the issue of information overload that will result from the greater number of systems in the network. Actual C4I systems can also be used as stimulators to the models and simulations in our SMART collaborative environments.

Future Battlefields

The battlefield of the future is going to require new and versatile types of training. Models used for virtual concepting will be upgradeable to serve as credible trainers so that soldiers can be trained before the actual system rolls off the assembly line. Designing embedded training into the system will allow soldiers to maintain individual proficiency and unit readiness while deployed. This will also save the cost of developing and maintaining stand-alone trainers. Virtual realities will be used to train, plan, and rehearse missions throughout the full spectrum of potential missions. By virtue of the simulations, soldiers will have greater opportunities to train and cross-train.

Clearly, the Army sees SMART as an enabler for achieving the Objective Force. A look at the Army's Transformation Campaign Plan reveals entries for SMART as an enabler for "Modernization and Recapitalization," "Training and Leader Development," "Development and Acquisition of Advanced Technology," and "Strategic Communication" Lines of Operation. Also readily apparent is how these entries are linked to every remaining Line of Operation.

SMART is the solution for substantially reducing the time, resources, and risk associated with this transformation. By applying the SMART concept, we will be able to increase the quality, military worth, and supportability of our systems—and do so with a reduced total ownership cost for the life cycle of the force.

The mechanism to ensure that SMART is an effective enabler is being put into place. The SMART concept began in the Army's Research, Development, and Acquisition (RDA) M&S Domain. Although the name was changed from SBA to SMART, concern still remained that SMART was too RDA-centric. At the SMART Conference held in Los Angeles in January 2000, part of the feedback recommended that the execution of SMART be moved to an organization outside of any single M&S domain. In the spring of that year, co-chairs of the Army Model and Simulation Executive Council (AMSEC) assumed responsibility as the proponent for the SMART mission, with the Army Model and Simulation Office (AMSO) acting as the Executive Agent. Upon that transfer, AMSO was charged with finalizing the Planning Guidelines for SMART, planning for the SMART 2001 Conference (which was held in Orlando, Fla., in April 2001), and developing an Execution Plan for SMART.

Funding for SMART

The SMART Execution Plan is the road map for where the Army will go in implementing SMART. A public release version of the SMART Execution Plan is available at *http://www.amso.army.mil/smart/*. The Execution Plan was staffed in the fall of 2000 and endorsed by the AMSEC in November 2000. The Plan contains 51 tasks, most of which require refocusing existing mission funds, especially for the short term. For the first time, the Army is obtaining funding for SMART. This funding is not meant to help particular models "get well," or to help a specific program pay for its M&S. The funding will be applied to those aspects of SMART that support the infrastructure. It will support those aspects that are beyond the scope of any particular Program Manager (PM) to develop, or those that a PM cannot be realistically expected to pay from program funds.

The SMART funding will support efforts that will be of long-term benefit to the Army and other PMs. They will support development of collaborative environments that are reusable, and allow customers to "plug and play" as well as share data and information. The Execution Plan will support the development of new cost analysis tools that are interoperable and can adequately address life cycle costs. In addition, it will support the RDEC federation, a Logistics federation, and Test and Evaluation federations that are reusable, interoperable, and are of long-term benefit to the Army. The Plan also addresses policy, and we will be looking for opportunities to incorporate SMART into Army documents as they are being updated, as well as developing a review process for Simulation Support Plans. An architecture will be closely examined so that standards can be recommended whenever they will be beneficial.

Funding in the SMART Execution Plan will also be applied to educating the workforce. Already, at the last SMART Conference tutorials were being provided. Additional online and electronic educational formats are being developed. In addition, the Plan identifies tasks to establish partnerships with other Services and government agencies to leverage efforts and investments outside the Army.

Gaining support for the funding initiative has not been easy. We have succeeded because SMART is a tool required for the Army to meet its goal of transforming itself into the Objective Force. AMSO is succeeding because the Army's senior leadership believes in, and has demonstrated enormous support for SMART.

Editor's Note: The authors welcome questions or comments on this article. Contact Donlin at *Bruce.Donlin@hqda.army.mil*. Contact Truelove at *michael.r.truelove@saic.com*.

Intellectual Property: Navigating Through Commercial Waters

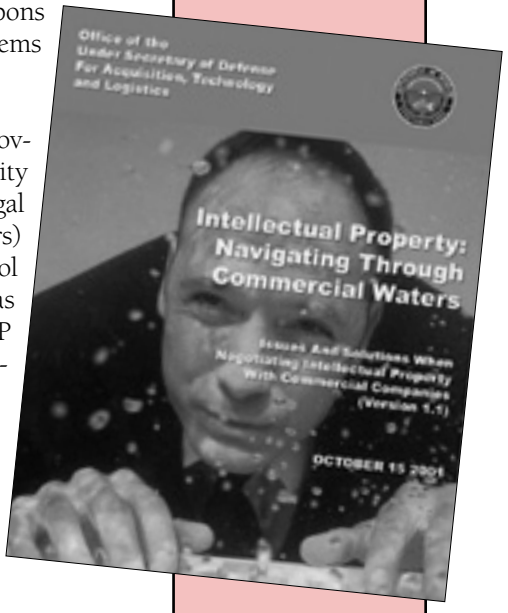
Issues and Solutions When Negotiating Intellectual Property With Commercial Companies

Published by:
Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), Oct. 15, 2001, Version 1.1

The concept of Intellectual Property (IP) is fundamental to a capitalist society. A company's interest in protecting its IP from uncompensated exploitation is as important as a farmer's interest in protecting his or her seed corn. Often companies will not consider jeopardizing their vested IP to comply with the government contract clauses that have remained in use since the days when DoD was the technology leader and frequent funder of research programs. We must now create a new environment for negotiating IP terms and conditions that protect the true interest of the government—incorporating technologically advanced solutions into the weapons systems and management systems we deploy.

This guide was created for the government acquisition community (i.e., contracting personnel, legal counsel, and program managers) and its industry partners as a tool to equip them with new ideas and solutions to address the IP issues that divide us in the negotiation process.

Currently published online, the guide may be downloaded from the Director, Acquisition Initiatives Web site at *http://www.acq.osd.mil/ar/doc/intelprop.pdf*.



JOIN DAUAA!

ATTENTION

Defense Acquisition University Graduates, Faculty, and Staff!

The name of the Defense Systems Management College Alumni Association—DSMCAA—recently changed to recognize DAU-DSMC organizational realignments and provide for a broader-based, more inclusive membership. The new name is the Defense Acquisition University Alumni Association (DAUAA). Until full implementation of this change occurs, the DAUAA will continue to use the following Web site and e-mail addresses:

Web site: http://www.dsmcaa.org
E-mail: dsmcaa@eros.com.

The process to change the Constitution and By-laws will proceed over the next several months.

If you do not yet belong to DAUAA, take advantage now of the great benefits of membership. As a graduate of any DAU-DSMC course, you are eligible to join a select group of acquisition workforce professionals and receive DAUAA benefits. Your benefits as a DAUAA member, to name a few, include:

- Addition of DAUAA membership to your résumé.
- Continuing involvement in defense acquisition activities and links to other professional organizations.
- Networking with other members of the Defense acquisition community through the Association membership Web site at http://www.dsmcaa.org.
- Timely updates on evolving Defense acquisition policies in Association Newsletters.
- Forum on initiating input to Defense acquisition matters through Newsletter and Symposium papers.
- Continuing Education Units (CEU) for DAUAA Annual Symposium participation—up to 2.5 CEUs—toward meeting DoD continuing education requirements.
- Promoting DAU's reputation as a world-class acquisition learning center, thereby enhancing value of education and training received.

Join this select group of professionals who are proud of their achievements as DAU-DSMC graduates, thankful for the skills and expertise they possess, and ready to make additional contributions to the security and progress of our nation.

Take advantage of this opportunity to help yourself and others. Call (703) 960-6802 to join DAUAA or complete one of the forms (opposite page). Mail it to the address shown. To learn more about DAUAA or register online using a credit card, visit the DAUAA Web site at http://www.dsmcaa.org.

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DEPARTMENT OF DEFENSE NEWS RELEASE

Defense Manufacturing Technology Award Announced

The Department of Defense announced today recipients of the third annual Defense Manufacturing Technology Achievement Award. Award recipients included James Mackiewicz and Janice Knowlton, U.S. Army Natick Soldier Center, Natick, Mass.; Robert Monks, Simula Safety Systems Inc., Phoenix, Ariz.; and Richard Palicka, CERCOM Inc., Vista, Calif. The award recognizes individuals most responsible for outstanding technical accomplishments in realizing a responsive world-class manufacturing capability to affordably meet the warfighters' needs throughout the Defense system life cycle. The 2001 award winners were responsible for the Army's "Enhanced Manufacturing Processes for Body Armor Materials" initiative.

"Thanks to the dedicated and outstanding efforts of the award-winning team, the soldiers and Marines who may be in harm's way participating in Operation Enduring Freedom will be wearing the best ballistic protection available in the world today," said Ronald M. Sega, Director for Defense Research and Engineering.

The current interceptor body armor jacket can stop 9mm handgun bullets. Now, because of the work of this team and the success of this ManTech project, two highly effective, lightweight ceramic armor materials have been developed and implemented that vastly enhance the interceptor's capabilities. Siliconized silicon carbide and boron carbide plates that can stop rifle or machine-gun fire—which was not possible with this jacket in the past—are now available to insert in the jacket's pockets. Simula, with a production capacity of 5,000 plates per month, has already delivered 45,000 of its siliconized silicon carbide plates and is under contract to deliver 140,000 more; 12,000 of CERCOM's boron carbide plates have also been fielded. The new armor plates are 55 percent lighter than traditional body armor, and have a cost approximately 60 percent lower than the high-performance armor plates that were available at the start of this project.

Additional information about this award, as well as info about the other nominees for the 2001 award, is available at *http://www.defenselink.mil/news/Dec2001/d20011206dmc`.pdf*.

Editor's Note: This information is in the public domain at *http://www.defenselink.mil/news*.

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Aldridge Solicits Nominations for 2002 David Packard Excellence in Acquisition Awards

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010

13 NOV 2001

ACQUISITION, TECHNOLOGY AND LOGISTICS

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: *Recognition and Awards for Acquisition Personnel* – David Packard Excellence in Acquisition Award Nominations

This memorandum serves two purposes: (1) to update and reissue the Under Secretary of Defense (Acquisition, Technology & Logistics) (USD[AT&L]) policy on *Recognition and Awards for Acquisition Personnel*, originally published June 9, 1996, revised November 3, 1997, and October 13, 2000; and (2) to solicit nominations for the annual David Packard Excellence in Acquisition Awards to be presented in 2002.

The USD(AT&L) policy on *Recognition and Awards for Acquisition Personnel* (attached) is updated to incorporate the organizational name change of the Director, Acquisition Initiatives effective July 20, 2001, and to clarify administration and reporting processes. To the extent possible, widest dissemination of this updated policy is encouraged.

Nominations are solicited for the annual David Packard Excellence in Acquisition Award. This Award recognizes organizations, groups, and teams that have demonstrated exemplary innovation and best acquisition practices.

Each Military Department and the Defense Logistics Agency may submit nominations for up to five teams, and all other Components and OUSD(AT&L) principals may nominate two teams. Specific guidelines on the eligibility, nomination, and selection criteria are provided at TAB 3 of the attached updated policy. Strict adherence to the nomination guidelines facilitates the review process, and is strongly encouraged.

Nominations for the David Packard Excellence in Acquisition Award must be submitted no later than February 1, 2002, to:

Office of the Under Secretary of Defense (Acquisition, Technology & Logistics)
ATTN: Director for Administration, OUSD(AT&L)
3150 Defense Pentagon, Room 3D1020
Washington, DC 20301-3150

Points of contact for award administration are Mrs. Phyllis Goldsmith and Mrs. Vanessa Williams at (703) 697-2525, and for award policy, Ms. Carol Preston at (703) 614-3882.

E. C. Aldridge, Jr.

Attachment:
As stated

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Editor's Note: This information is in the public domain. To download the attachment to Aldridge's memorandum, visit the Deputy Under Secretary of Defense (Acquisition Initiatives) Web site at **http://www.acq.osd.mil/ar/doc/2001awardpolicy.doc**

JASSM Test Proves Deadly Accurate

Washington D.C.—An Air Force F-16 Fighting Falcon successfully launched a Joint-Air-to-Surface Standoff Missile (JASSM) yesterday.

During a flight test, held at White Sands Missile Range, N.M., an F-16 from the 46th Test Wing launched the JASSM while cruising at about 500 mph at an altitude of 15,000 feet. The weapon separated cleanly from the aircraft, deployed its wings and tail section, and ignited its engine at the proper altitude to begin a 50-mile dash toward the target array on the desert floor.

The missile flew exactly as planned through three way points for a total of 9 minutes (about 50 miles). The JASSM missile impacted within a lethal distance of the relocatable radar target and the warhead exploded. All systems, including the engine, guidance, and fuze arming performed flawlessly. "This successful launch clears the way for a Low Rate Initial Production decision," said Terry Little, JASSM Program Manager The JASSM is a 2,250-pound cruise missile, which carries a 1,000-pound-class dual-purpose warhead. The warhead is capable of destroying soft and distributed surface targets or deeply buried, hardened structures. It can fly in adverse weather, day or night, from standoff ranges well beyond enemy air defenses. The range is classified, but officials said it is beyond 200 nautical miles. Its stealth characteristics and on-board anti-jam countermeasure components make it extremely difficult to defend against.

JASSM provides high lethality against hard or soft targets at long standoff ranges and is compatible with a wide range of Air Force and Navy aircraft. Image courtesy Lockheed Martin

The Air Force originally planned to buy 2,400 JASSMs, but there are ongoing efforts to greatly increase that number. Current plans call for the missile to be carried on the F-16, B-1B Lancer, B-2 Spirit, and B-52 Stratofortress.

For more information contact Jim Swinson at Air Armament Center Public Affairs (850) 882-3931x458.

Editor's Note: This information is in the public domain at *http://www.af.mil/news*.

Editor's Note: The cover story of our March-April 2001 Program Manager, "Contractors and Operational Testing: Some Involvement is Legal and Necessary," generated three follow-up articles: the first in the July-August 2001 Program Manager (pp. 94-96); the second in the November-December 2001 issue (pp. 22-25); and the third in the November-December 2001 issue (pp. 64-67). John Stoddart, now President of Defense at Oshkosh Truck, responds to all three articles with the following open letter to Thomas Christie, Director, Operational Test and Evaluation, Office of the Secretary of Defense.

On behalf of the NDIA Industrial Committee on Operational Test and Evaluation (ICOTE), I would like to congratulate you on your new and challenging position as DoD Director of OT&E. As you know from your attendance at the committee's June 2001 meeting in Washington, D.C., the committee is seeking to improve the OT&E and overall acquisition processes. We solicit your participation, guidance, and assistance in our efforts.

In these days of war on terrorism, we all face two common goals:

- Ensure systems are fully tested before fielding.
- Speed up the acquisition process.

The first challenge and common goal facing testers, government program managers, and industry is to ensure that a system is fully tested in accordance with the user's requirements before fielding. The greatest help to testers and contractors in this area would be to have clear, unambiguous, realistic user requirements. The new 5000-series documents include a spiral development concept that may help us more quickly field systems, reduce OT [Operational Test] risk, and provide disciplined growth to an objective set of requirements. We believe the testers should be involved in the requirements process early on to ensure success.

It is also very important that users, testers, and contractors establish good communications early in a program. Operational testers should help develop and closely follow Developmental Tests (DT) so that the results can be used to the maximum extent possible in overall OT assessments. Contractors should have access to the Test and Evaluation Master Plan, the OT test site, and early test results. Collectively, we should also make maximum use of modeling and simulation results to support both DT and OT evaluations. It is possible that adoption of some of these procedures will help us achieve our common goal of conducting timely, complete, and realistic testing in the most efficient manner possible.

The second goal is to speed up the acquisition schedule in order to provide the timely fielding of rapidly changing technology. Attempts to speed up testing can result in unrealistic schedules and added risk. On the other hand, an unnecessarily long System Development and Demonstration (SDD) phase is generally not desirable to the government or the contractor because it does not provide a timely fielding of technology to the user. It also has an adverse effect on the industrial base because profits are usually made on full-rate production. Although the OT phase alone is not a major portion of the overall acquisition schedule, taken together with the evaluation and correction of deficiencies phases, there may be room for some acceleration if the testers, government program managers, and the contractors work together.

We would be pleased to work with you to help overcome the current challenges in our testing and overall acquisition processes.

John Stoddart
President, Defense
Oshkosh Truck Corporation
ICOTE Committee Chairman

DAU to Offer New Program Management Office Course (PMOC)

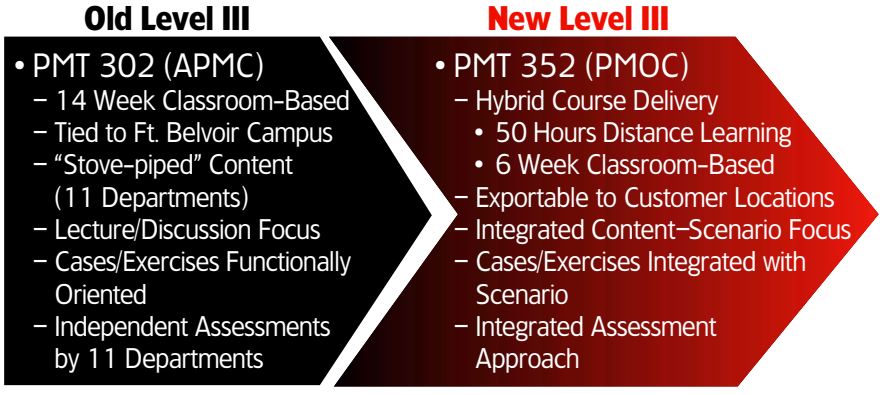
DoD Level III Program Management Certification Enters the 21st Century

KEN BLOOM • BILL BAHNMAIER

Students who attended the Defense Systems Management College to complete the 20-week Program Management Course (PMC) can readily recall both the hard work required of the course and the comradery with their classmates. They fondly remember building the wooden mousetrap vehicle, striving to meet both the technical and performance requirements of the runoff.

When the course was reduced to 14 weeks and renamed the Advanced Program Management Course, or APMC (Figure 1), students moved from building the old mousetrap vehicles to building a prototype of an Unmanned Ground Vehicle (UGV) using Lego Mindstorms.™ The course required students to design, build, and program the software for the Lego Mindstorms' vehicle so that it could successfully negotiate through a difficult obstacle course.

FIGURE 1. **DAWIA Certification—Old Level III vs. New Level III**



A New Beginning

Beginning in 2002, students will complete the Program Management Office Course (PMOC) using an advanced version of Lego Mindstorms to design the UGV online, build it, and then test it on a simulated battlefield. The course number is Program Management Training (PMT-352). This is part of DAU President Frank Anderson's Fast-Track Initiatives, specifically, "Revision of PM Training Curriculum," first published in October 2000.

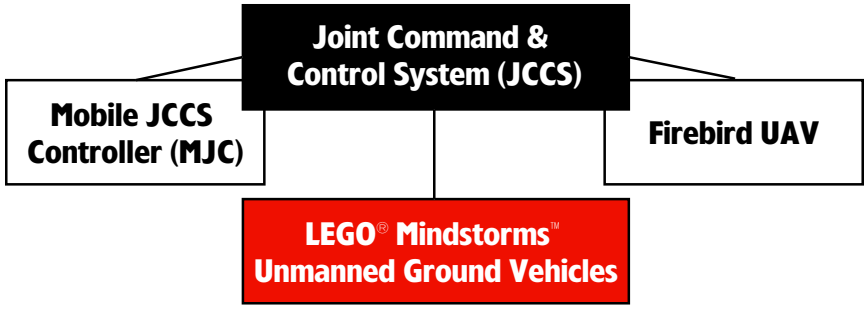
Defense Acquisition University, assisted by Accenture, is working to incorporate computer-aided design technology, simulation-based trade-off software, and risk analysis programs into Lego Mindstorms.

Figure 2 represents the Joint Reconnaissance and Autonomous Targeting System (JRATS), which is a system of systems used throughout the course to emphasize interoperability and information superiority.

JRATS involves UGV alternatives, an Unmanned Aerial Vehicle (UAV) called "Firebird," and a Joint Command and Control System (JCCS).

Hold on to your joystick because the virtual battlefield is only one aspect of this newly structured course. DAU has taken

FIGURE 2. **Joint Reconnaissance and Autonomous Targeting System (JRATS)**



Bloom is the industry Project Manager for PMT 352 development at the Defense Acquisition University (DAU), Fort Belvoir, Va. Based in Detroit, Mich., he is employed by Accenture. Bahnmaier is a Professor of Acquisition Management with the Program Management and Leadership Department of the DAU Capital/Northeast Regional Campus at Fort Belvoir, Va. Currently, he is serving as DAU's Course Manager for PMT 352 development and delivery.

great care to design PMT-352 (PMOC) with the student in mind (Figure 3).

Hybrid Course Design

PMT-352 (New Level III, Figure 1) is the final required course for over 90 percent of personnel in the Program Management Career Field.

The new course better meets the needs of the student while producing more effective Level III PM career field professionals. Graduates will be able to capably serve as senior Program Management Office (PMO) Integrated Product Team (IPT) leaders and members.

The PMT-352 course design team conducted field-level assessments at locations with high concentrations of Acquisition, Technology, and Logistics (AT&L) personnel. Data gathered during the field assessments shaped both the mix and duration of Distance Learning (DL) and classroom learning for the course. These assessments reported that field personnel like the freedom of DL, but believe that face-to-face teaming is required for the intricate nature of the course exercises.

The information gathered from the field assessments—along with the course performance outcomes, student responsibilities, and the DoD culture—resulted in the hybrid course design concept, blending the appropriate mix of DL and classroom instruction.

Over 700 students are expected to complete PMT-352 each year. The student pilot will be conducted in January 2002, with the first course offering scheduled for June 2002.

Web-Based Training

If you've ever taken a DL course and found yourself yawning through each page of material, you are in for a pleasant awakening. PMT-352 delivers its online content via exciting interactions and activities to keep you engaged.

PMT-352 begins with 50 hours of Web-based DL that students complete over a 60-day period. The 60-day period allows maximum flexibility for students to complete the material at their own pace, wherever and whenever they wish. Ten modules of work are completed during this 60-day period.

At the beginning of each of the 10 modules, your online supervisor assigns specific activities and tasks to complete. To add reality to the assignment, as you complete your work your online supervisor offers advice and feedback—whether you want it or not—much like your real-life supervisor.

The DL portion of the course is designed using Goal-Based learning theory. This is not read-and-remember type training. Rather, it is hands-on, scenario-driven learning that uses real-world situations. Each module drops the student into a specific acquisition program with unique factors and presents activities that simulate program acquisition challenges. In completing an activity, students perform tasks as they would in their actual work environment.

Each module is stand-alone, requiring students to critically think and assess the details of each scenario for the appropriate answers. An additional benefit of stand-alone module design is that students can complete the modules in any order.

Estimated completion times are provided for each module so that students who have a two-hour window on a

FIGURE 3. **PMT-352 Course Structure**

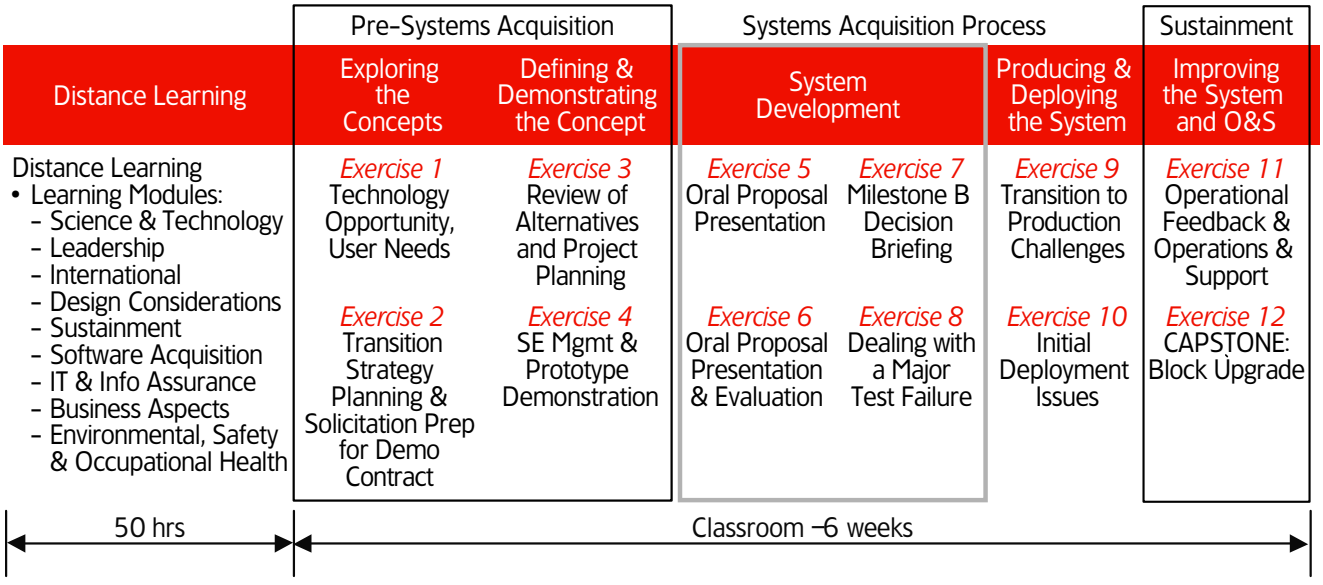
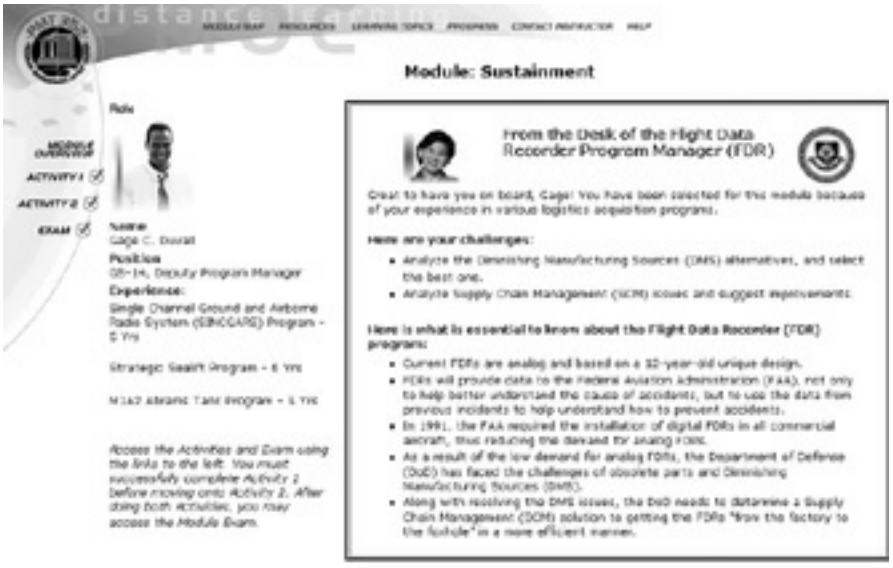


FIGURE 4. **Example of Online Course Module**



given day can select a module that fits into their schedule.

DAU also benefits from stand-alone modular design because the material may be easily moved to other courses or to DAU's online Continuous Learning Center (*http://clc.dau.mil*).

Online Resources

To help students complete modules, the DL contains a resource layer (labeled "Resources") comprised of Web links, online handbooks, links to prior courses, and other supporting information (Figure 4).

A number of custom learning topics (reference aids), each covering a single area or subject, is also available (Figure 5). While working on an activity, students can consult the resource layer to complete their tasks.

Once the course is over, students will have access to this resource layer when they return to work. This provides information from the course where and when students need it most. Access to course material on the job supports DAU's goal of providing real-time information and performance support to students at point of need.

Classroom Training

Upon successful completion of all 10 DL modules, students attend six weeks of team-based exercises in the classroom (Figure 6). This classroom portion of the course is designed to be exportable so that students can take the course at any of the DAU campuses. The course will eventually be offered at other locations based on student demand.

Real-World Scenario

Once in the classroom, each student is issued a notebook computer to use throughout the six weeks. Students are divided into PMO Integrated Product Teams with six members on each team. Twelve exercises must be completed by the team to successfully pass the course. A single scenario, based on the JRATS, is used for all exercises.

The JRATS scenario and exercises mirror events in the Systems Acquisition Life Cycle. JRATS, which is a system of systems, includes Joint Unmanned Ground Vehicle (JUGV) alternatives, the "Firebird" UAV, and a JCCS.

Each student is assigned a role on the team, and roles change for each exercise. Each student has at least two opportunities to perform as the IPT Leader.

Roles vary depending on the performance objectives of the exercise. Another unique aspect of the course is that students also get to perform as defense contractors while they build the JUGV prototype alternative to government specifications, develop a proposal, and then pitch their proposal during an oral presentation.

In role-playing both a government program manager and defense contractor, students not only acquire the knowledge, skills, and capabilities necessary to execute program management tasks, but they also gain valuable insight from a contractor's perspective regarding systems acquisition.

Throughout the classroom exercises, much like the DL portion of the course Goal-Based learning theory is used as the learning approach. Goal-Based learning operates on the principle that students learn best through experience and mistakes while trying to reach a certain goal.

Another key point is that the exercises are fully integrated.

Each exercise is two to three days in length, covering several functional areas. This is in contrast to the current "stove-

FIGURE 5. **Example of Online Activity with Learning Topics**

piped" course—PMT-302—where functional areas are taught separately.

Multi-faceted Assessment

Assessment is another area where PMT-352 is leading the way. Instead of simply distributing a pencil and paper test at the end of the course, the PMT-352 assessment approach is multi-faceted.

Prior to beginning the course, students undergo a body of knowledge review and pre-course assessment. The body of knowledge review is a non-graded self-assessment that helps students identify prerequisite material that needs to be reviewed from ACQ-101, ACQ-201, and PMT-250 prior to starting the PMT-352 course.

The body of knowledge assessment is not graded. It is simply a means of ensuring all students have a similar baseline of knowledge when they start the course.

The pre-course assessment and subsequent post-course assessment determine the student's comprehension of the material from the beginning of the course to the completion of the course. Pre- and post-testing also helps DAU evaluate the overall effectiveness of the course. This assessment includes material that will be covered in PMT-352.

During the DL portion of the course, students answer questions while they complete the work as part of each module's activities and tasks. Additionally, 10 online exams—one at the end of each module—assess whether the student met the learning objectives of the module.

The field-level analysis, conducted during the course design phase, revealed that former students and supervisors were adamant about making the new course more rigorous. Supervisors reported that there were far too many Level III program management personnel who did not possess the necessary skills to be successful in the positions they will be filling.

PMT-352 students must complete all DL exams with 100 percent accuracy before being eligible to proceed to the classroom portion of the course. They have three tries to reach the 100 percent requirement.

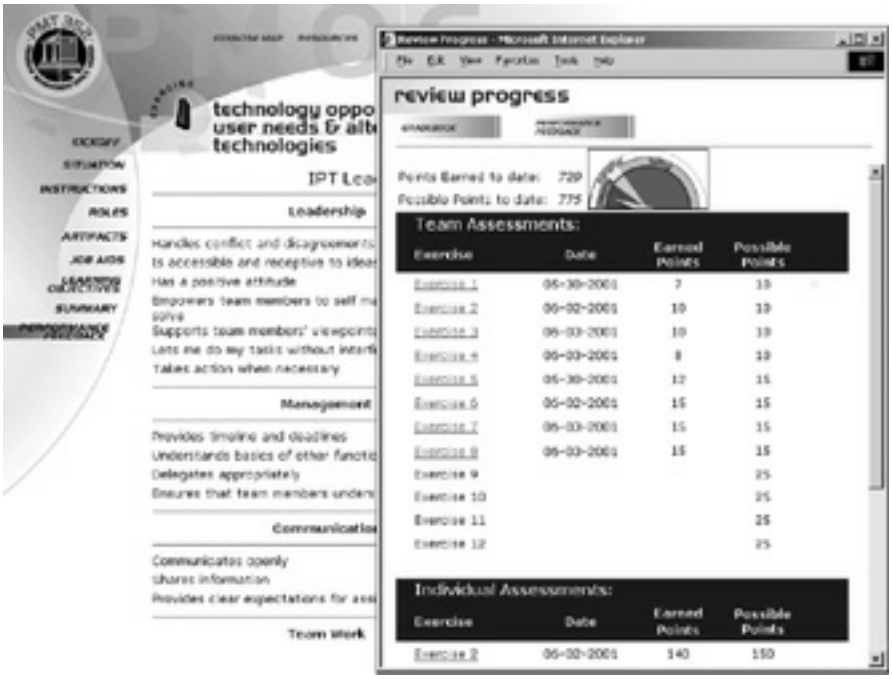
When students reach the classroom, they are granted access to an online assessment tool that helps them track their progress throughout the course. Clear expectations for success (at least 800 out of 1000 possible points) are outlined so that students know exactly where they stand at any given point in time during the course.

Classroom assessments (Figure 7) include testing students' analysis and evaluation skills at predetermined times during the scenario, along with team briefings at the completion of each exercise. The briefings are evaluated from both a leadership contribution level and from a team perspective.

Do all deliverables and briefings meet the established criteria for quality and completeness? Were all individual work products incorporated into the team solution? Is the team able to effectively

FIGURE 6. **PMOC Team-Based Classroom Exercises**

FIGURE 7. **Example of Online Classroom Assessment Tool**



defend its position? Were the team dynamics effective in reaching the solution?

Students must maintain a score of 80 percent (or 800 out of 1,000 points) to pass the course. The online assessment tool enables students to continuously monitor their progress and adjust their work accordingly. The responsibility of meeting course requirements is clearly placed on the student.

Peer-to-Peer Assessment

In addition to assessments that evaluate knowledge gained and hands-on performance, non-graded upward feedback forms are completed by team members regarding the effectiveness, capabilities, and decision-making abilities of the team leader.

Likewise, student IPT Leaders complete downward feedback forms regarding performance and contributions of their team members.

This feedback information is critical to personal development. However, because of confidentiality, the information is compiled and summarized along with instructor feedback and provided after the completion of the course.

Six months after completing the course, students complete a follow-up assessment to determine if knowledge transfer occurred from the course to the job. How much of what was learned in the course is relevant and useful in real life? This information helps keep the course up to date with the rapidly changing needs of the acquisition workforce.

Upon successful completion of all 10 Distance Learning modules, students attend six weeks of team-based exercises in the classroom. Students like the freedom of Distance Learning, but believe that face-to-face teaming is required for the intricate nature of the PMT-352 course exercises.

Who Should Attend

The target audience for PMT-352 is civilian (GS 13-14) and military (O4-O5). Successful completion of the course meets the training requirements for DAWIA Level III PM Certification (Figure 8).

Over 700 students are expected to complete PMT-352 each year. The student pilot will be conducted in January 2002, with the first course offering scheduled for June 2002.

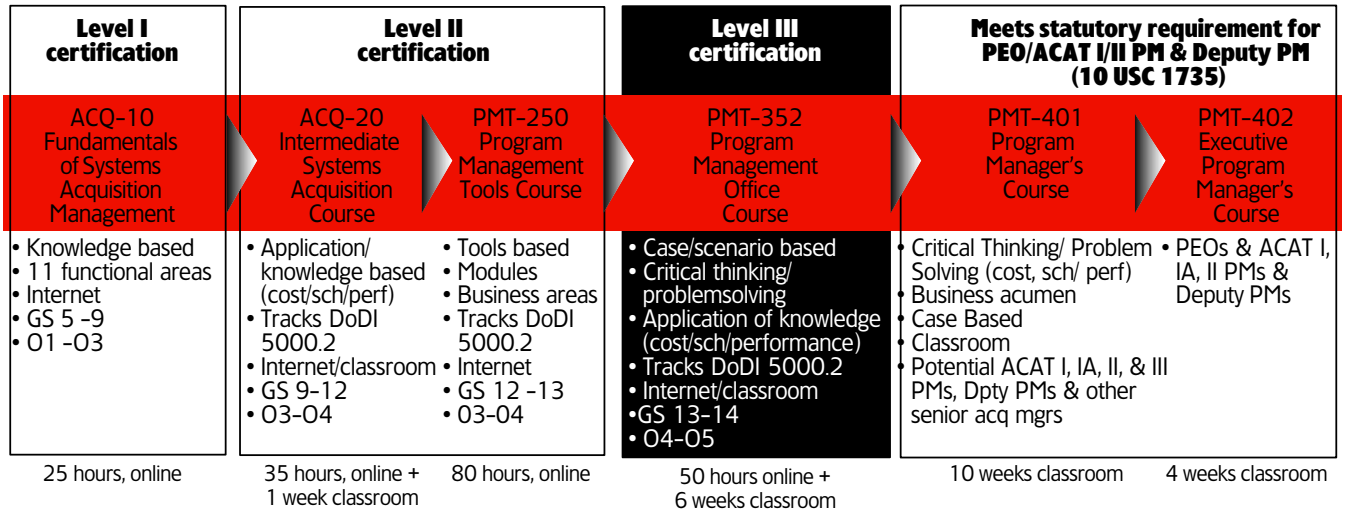
The course requires participants to apply critical thinking, problem solving, leadership, and management skills throughout the course.

The online simulation and interactive DL with real-time feedback improves student engagement. The hands-on prototype building and goal-based scenario in the classroom increase both comprehension and retention.

PMT-352 introduces a new level of Program Management training that is both comprehensive and fun. But don't rely solely on our admittedly biased advocacy. Browse our Web site at *http://www.dau.mil* and learn how a DAU acquisition education can enhance your acquisition career. Plan now to register, and then simply *enjoy* what we believe is a truly unique learning experience.

Editor's Note. The authors welcome questions or comments on this article. Contact Bloom at *kenneth.bloom@dau.mil* or Bahnmaier at *bill.bahnmaier@dau.mil*.

FIGURE 8. **Program Management Career Track**



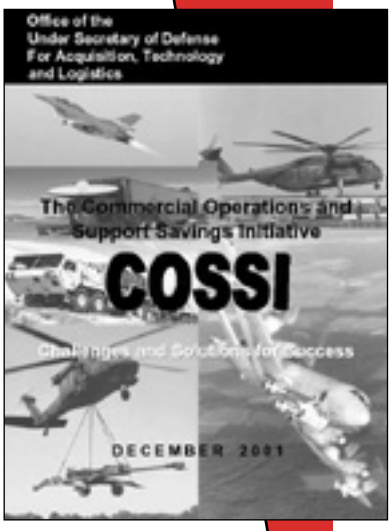
Now Online! USD(AT&L) Publishes New Handbook on COSSI

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3000

14 DEC 2001

ACQUISITION, TECHNOLOGY AND LOGISTICS

Commercial Operations and Support Savings Initiative Handbook



The Commercial Operations and Support Savings Initiative (COSSI) program was designed to improve readiness and reduce operations and support (O&S) costs by inserting existing commercial items or technology into military legacy systems. COSSI emphasizes the rapid development of prototypes and fielding of production items based on current commercial technology.

This handbook will enhance the ability of contracting officers, COSSI program managers, and other personnel to optimize program benefits. The handbook does this by clarifying pre-award and post-award procedures, summarizing lessons learned from existing programs, and offering practical management reference tools for both civilian contractor and military customer participants who are transitioning COSSI programs from prototype development to production.

Though nothing in this handbook should be construed as directive in nature, I encourage you to use and apply it. All processes described are examples. Those processes actually used should be tailored to each specific application. This handbook is available online at *www.acq.osd.mil/ar*. Any questions or feedback concerning the handbook should be referred to Craig Curtis, Office of Acquisition Initiatives, at (703) 697-6399, or electronically at craig.curtis@osd.mil

Charles J. Holland
Deputy Under Secretary of Defense
(Science & Technology)

Donna S. Richbourg
Director, Acquisition Initiatives

Editor's Note: This information is in the public domain. To download the December 2001 COSSI Handbook, go to *http://www.acq.osd.mil/ar.*

Army Set to Introduce "CAT"

Cost As an Independent Variable (CAIV) Analysis Tool

COL. TERRELL W. MATHEWS, USAR

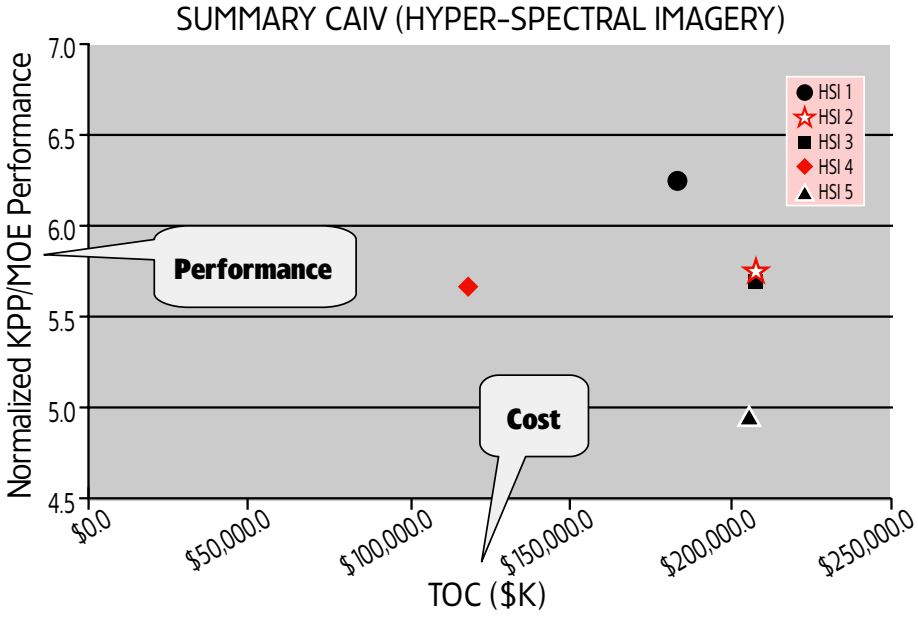
The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA/ALT) Army Total Ownership Cost (ARTOC) Directorate designed, developed, and tested a beta-version of a Cost As an Independent Variable (CAIV) analysis tool. Dubbed CAT, for CAIV Analysis Tool, PM Teams may use CAT to perform CAIV analysis of their proposed products and product improvement initiatives. CAT is a Microsoft® Excel© tool that offers many advantages:

- Provides a point-and-click user interface to navigate through the data entry menus.
- Presents real-time CAIV Analysis in a graphical chart.
- Implements the latest version of DoDI 5000.2.
- Adheres to MIL-HNBK-881B Work Breakdown Structure (WBS).
- Allows users to view Total Ownership Costs (TOC) at various WBS levels.
- Summarizes TOC into apportionment categories with pie and bar charts.
- Interfaces with Tecelote's Automated Cost Estimator Integrated Tool (ACEIT©) used by the Army's Cost and Economic Analysis Center (CEAC).

CAT's Start Menu, consisting of the following 14 steps, allows the Program Management (PM) Team to easily point-and-click through the data entry menus:

Step 1
Enter the Point-of-Contact's Information
Step 2
Enter the Product's Description
Step 3
Enter the Start Year and Program Schedule
Step 4
Enter the number of Major End Items (MEI) per Battalion
Step 5
Enter the Battalion Fielding Plan
Step 6
Enter the Battalion Disposal Plan
Step 7
Enter the Procurement Plan
Step 8
Enter the Number of and Cost for Personnel in a Battalion
Step 9
Enter the Cost for Each Sub-System
Step 10
Enter the Performance Parameters for Each Sub-System
Step 11
Enter the Fuel Cost
Step 12
View the CAIV (Cost As an Independent Variable) Charts
Step 13
Select the Sub-Systems
Step 14
View the Acquisition Phase and Fund Information

FIGURE 1. **A CAIV Scatter Chart**



A CAIV analysis, including a CAIV scatter chart in Step 12 (Figure 1), is immediately available to the PM Team after they fulfill the initial 11 process steps. After the Team selects the component or sub-system in Step 13, CAT allows the Team to view the planned expendi-

Mathews *is currently assigned to the Army Total Ownership Cost (ARTOC) Directorate in the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA/ALT), Falls Church, Va. His prior assignments include battalion command, executive officer, S-3, and company commander. Mathews holds a Ph.D. in Engineering Management and is a graduate of Command and General Staff College (C&GSC).*

tures by acquisition phase and by appropriation fund.

Provides Real-Time CAIV Analysis

Upon completing the 14 steps, the PM Team arrives at a CAIV and Fund analysis. CAT allows a PM to more easily select the best product based upon performance vs. TOC. Figure 1 provides an example of a CAIV scatter chart, showing real-time CAIV analysis.

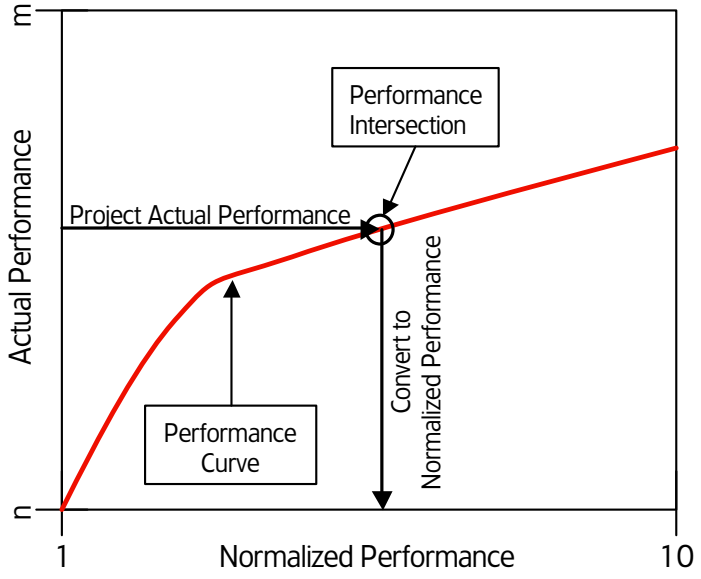
The CAIV scatter chart plots the normalized performance as a function of TOC. Using Figure 1, for example, users can easily determine that CAIV Hyper-Spectral Imagery (HSI) provides little additional performance and costs about $175 million more than does HSI 3 over the life of the hyper-spectral component. This analysis is one of the tenets of CAIV—best performance/less TOC. How does CAT assist the Team in performing CAIV analysis? The following discussion provides a cursory description of CAT CAIV.

The PM Team must provide cost and performance estimates to generate the CAIV graphs. CAT allows the PM Team to enter a product's estimated cost for Research, Development, Test & Evaluation (RDT&E); Procurement; and Operations and Support (O&S), which includes Annual Integrated Logistics Support [ILS] and Training Costs.

After the Team provides the cost estimate, they enter the anticipated performance of the component with respect to the Key Performance Parameters (KPP), Measures Of Effectiveness (MOE), and/or Measures Of Performance (MOP).

CAT normalizes the performance in order that any weight factors the Team chooses to use are meaningful. For example, if an MOE required an airborne electronic intelligence system to detect emitters at a specific range and within a specific time interval, the Team might consider the altitude and the speed at which the various aircraft candidates can operate.

FIGURE 2. **The Performance Normalization Concept**



Typically, altitude is measured in thousands of feet and speed in hundreds of knots. When the altitude is on order of magnitude higher than speed, the Team is able to understand one reason why CAT allows them to normalize performance. Therefore, CAT assists the PM Team to avoid induced weighting anomalies. Figure 2 illustrates the concept behind the normalization algorithm.

After normalizing the performance, CAT immediately generates a CAIV chart that graphically compares the performance as a function of TOC for the PM (Figure 1).

Implements DoDI 5000.2, Oct. 23, 2000

CAT summarizes TOC for each of the phases defined in the latest version of DoDI 5000.2:

- Concept and Technical Development (C&TD)
- System Development and Demonstration (SD&D)
- Production and Deployment (P&D)
- Operations and Support (O&S).

Another useful advantage of CAT is the inclusion of the online phase and sub-phase definitions. The definitions are displayed using the pop-up technique. By merely placing the cursor over the phase or sub-phase title, CAT automatically displays the definition exactly as it appears in DoDI 5000.2.

Adheres to Military Handbook 881B (MIL-HNBK-881B) Work Breakdown Structure

CAT describes three generic products in accordance with the WBS defined in MIL-HNBK-881B. Currently, the three generic products are an aircraft system, a ground system, and a common ground station. Under a ground system, for example, CAT displays a Work Breakdown Structure for a "PRIMARY VEHICLE" as defined in MIL-HNBK-881B. Underneath "PRIMARY VEHICLE" are the other components such as "HULL/FRAME" or "SUSPENSION/STEERING."

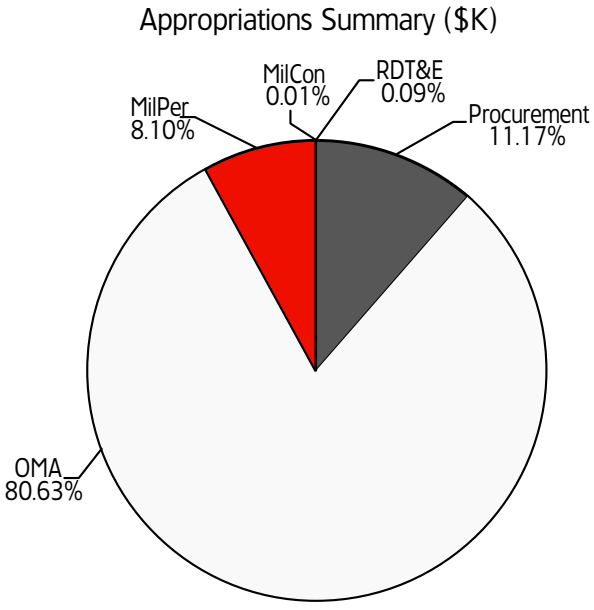
ARTOC plans to define other generic products at a later date.

With Excel© providing the execution environment for CAT, a PM Team may modify the WBS to fit their needs. As with the DoDI 5000.2 phase and sub-phase definitions, CAT also automatically displays the WBS definition when the user places the cursor over the title.

Allows Users to View TOC at Various WBS Levels

On many occasions, our PM Teams need to review costs at various WBS levels. CAT allows the Team to view TOC at

FIGURE 3. **Appropriation Categories (Pie Chart Format)**



Levels 1 through 5 as defined by MIL-HNBK-881B. Users select the desired view by depressing the "+" or "–" buttons on the left side of the display. When users depress the "+" button, CAT expands the view to the next level. When users depress the "–" button, CAT compresses the level.

Summarizes TOC into Apportionment Categories

To help ease the burden placed upon fund managers, CAT currently summarizes TOC into RDT&E, Procurement, and Operations and Maintenance, Army (OMA) by fiscal year. ARTOC plans to add other categories at a later date. The pie chart in Figure 3 provides a summary of the TOC using a notional example. Users may view TOC as a percentage or in $K for RDT&E, Procurement, OMA, Military Personnel (MilPer), and Military Construction (MilCon).

Program and financial managers may find this capability, along with the other capabilities of CAT, useful for justifying their Program Objective Memorandum submissions.

Interfaces with ACEIT©

Knowing that CEAC is responsible to perform an economic analysis, ARTOC has ensured CAT is compliant with, and interfaces seamlessly with ACEIT©. Although most PM Teams may not be competent users of ACEIT©, most are competent users of Excel©. Therefore, ARTOC designed CAT to execute in the more familiar environment of Excel©, while ensuring our Teams will be able to provide the results of their efforts to CEAC in ACEIT.

Assessing Usefulness, Implementing Enhancements

Although only a few advantages of CAT are discussed in this article, others do exist. CEAC and ARTOC have teamed to enhance and validate CAT, then solicit selected PM Teams to use this innovative tool. Through field use of CAT, CEAC and ARTOC will better assess its usefulness and implement enhancements that will better assist our primary customer—the PM Team.

Editor's Note: If users desire a closer look at CAT, please contact Richard M. Childress, *richard.childress@saalt.army.mil*, (703) 681-7502; Army Col. Terrell W. Mathews, *terrell.mathews@saalt.army.mil*, (903) 457-6440, or Army Col. Robert L. Corlew, *robert.corlew@saalt.army.mil*, (703) 681-7501.

Defense Electronic Business Education and Training

The Defense Electronic Business Program Office is pleased to announce the inauguration of its eBusiness education Web site – *edLINK* – and the Defense Electronic Business education and training list serve.

The mission of the Defense Electronic Business Program Office is to accelerate integration of eBusiness techniques into DoD's operations. We created *edLINK* to provide easy access to DoD eBusiness course information.The *edLINK* Web site is designed specifically to provide DoD instructors with information that can easily be incorporated into current and future courses. Prime candidates include courses related to program management, contracting, logistics, supply, and supervisor or manager development.

In addition to *edLINK*, our companion list serve broadcasts evolving, pertinent eBusiness information to DoD's education and training community. We anticipate that the list serve also will become a useful communication network for the exchange of eBusiness curriculum-related information among all of the list serve members. To join the list serve, simply go to the *edLINK* Web site at *http://www.interactionnet.com/edLINK/index.htm* and follow the instructions provided. For *edLINK* **general** questions or information, contact Stanley Dubowski at:

Comm: (703) 767-0614
DSN: 427-0614
e-mail: *stanley_dubowski@hq.dla.mil*

For *edLINK* **technical** questions or suggestions, contact:
Allen Van Brunt, DoD eBusiness Education Program Analyst, LLD, Inc., at:

Comm: (703) 925-0660, ext 540
e-mail: *avanbrunt@corp.lld.com*

New Version of PM CoP Portal Now Online!

http://www.pmcop.dau.mil/pmcop/

The Assistant Secretary of the Navy for Research, Development, and Acquisition (Acquisition Reform Office), and the Defense Acquisition University (DAU) have updated their recently developed Program Management Community of Practice (PM CoP) Web site. In addition to a new user interface, the site features better support for discussion forums, member information for community collaboration, and new content in the areas of contract management and risk management.

The PM CoP portal and communities are helping the program manager, the program management team, and their industry partners perform their jobs more effectively through knowledge sharing. PMs now have anywhere, anytime (24/7) program management support for job performance through a Web portal. Populated with links to net materials, lessons learned, questions, best practices, yellow pages, and chat capability, the goals of the PM CoP include: knowledge capture and retrieval, collaboration, solution development, new idea generation, and online mentoring of acquisition workforce personnel.

The development and support team consists of executive leaders, an Overarching Integrated Product Team (IPT), and Working IPTs, which include joint leadership and membership. Through the participation of 30+ current and former program managers in February 2001, five key high-priority kick-off areas were identified in supporting a PM community :

- Risk Management
- Contract Management
- Software Acquisition Management
- Systems Engineering
- Earned Value Management

Currently, Risk Management, Contract Management, and Systems Engineering communities are linked to the portal. A previously developed Total Ownership Cost (TOC) community has also been integrated into PM CoP. Links are also provided to information sources on various subjects of interest to the Program Management community, which are candidates for future communities of practice.

How can the PM CoP benefit you and your program? The PM CoP supports program managers from the ranks of the DoD acquisition, technology, and logistics workforce and their executive teams by providing a valuable resource to aid their program management efforts in several areas:

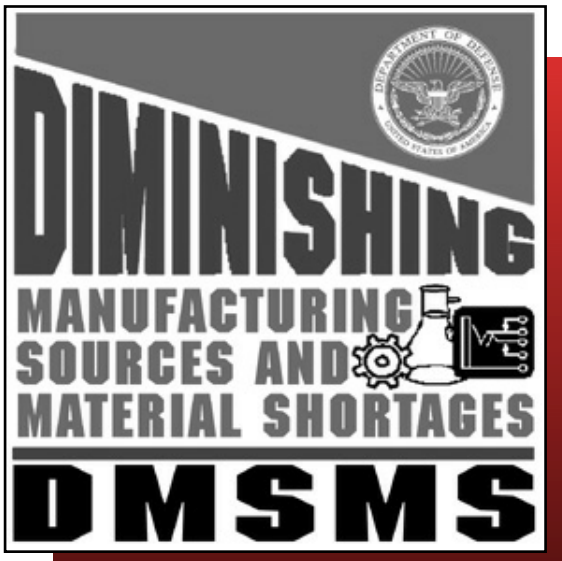
- Solving real-world problems and performing tasks typical of the acquisition workforce.
- Managing requirements.
- Performing political, social, technical, economic, and programmatic activities.
- Achieving organizational goals more efficiently.

Long-Term Plans

The long-term PM CoP vision calls for community support for all key acquisition functional areas. Eventually, the Navy Acquisition Reform Office and DAU anticipate that there may be around 40-50 key functional areas. In the coming year the Navy Acquisition Reform Office, Defense Acquisition University, Office of the Secretary of Defense, and Defense Contract Management Agency will partner to develop an Earned Value Management focus area within the PM CoP.

PM CoP
Program Management
Community of Practice

What are you waiting for? Log in now, learn, and share. Your knowledge contributions are what the community is all about!



Diminishing Manufacturing Sources and Material Shortages (DMSMS) Conference

March 25-28, 2002
New Orleans, Louisiana

To Register, call the DMSMS 2002 Conference Hotline at (256) 876-0635 or Visit the DMSMS 2002 Conference Web http://smaplab.ri.uah.edu/dmsms02/

Sponsored by the Department of Defense
Hosted by the U.S. Army and the Defense MicroElectronics Activity

YOU ARE INVITED

This conference presents an opportunity for Program Managers and others facing DMSMS challenges to hear the views of military and industry leaders on the best programmatic, technical, and logistical approaches available to sustain the modern warfighter! Many programs have realized cost avoidance ratios of greater than 6:1 after implementing common practices and approaches presented at previous DMSMS Conferences.

The low conference fee includes a special DMSMS tutorial session that will be conducted Monday afternoon (March 25) for those who may be newcomers to the obsolescence arena or first-time participants at the conference. In addition to presentations, a poster session and exhibitors as well as three panel sessions will provide a chance for interactive dialogue, including a timely panel on Acquisition Guidelines–specifically, How to Implement Contractual Language that Mitigates the Risk of Obsolescence.

TOPICS FOR 2002 PRESENTATIONS

Emerging Technology Refresh Strategies • Acquisition Guidelines for Component Obsolescence Management • Legacy System Sustainment Analysis • DMSMS—An Australian Defence Force Perspective

Plus presentations on VHDL modeling, open systems architecture, emulation, mechanical parts obsolescence, the DoD DMSMS Teaming Group, and many more...

DAU Guidebooks Available At No Cost to Government Employees

Comparison of the Defense Acquisition Systems of Australia, Japan, South Korea, Singapore, and the United States

Author: *Stefan Markowski* *Editor:* *Tony Kausal*

This guidebook describes the national armament systems of Australia, Japan, South Korea, Singapore, and the United States. Beginning with an introduction to the political environment, the acquisition organizations, systems, and processes involved, Kausal and Markowski describe the effects of differences in national culture and traditions, time zones, currencies, fiscal year schedules, and language barriers. Tying these differences to each nation's national armament system, the authors make the case that international armaments cooperation is a difficult but rewarding challenge.

Online

http://www.dsmc.dsm.mil/pubs/misc/acq-comp-pac-00.htm

Printed Copy

To request a printed copy of *Comparison of the Defense Acquisition Systems of Australia, Japan, South Korea, Singapore, and the United States*, choose one of three options: 1) Fax a written request to the DAU Publications Distribution Center at (703) 805-3726; 2) mail your request to Defense Acquisition University, Attn: AS-CI, 9820 Belvoir Road, Suite 3, Fort Belvoir VA 22060-5565; or 3) e-mail *jeff.turner@dau.mil*.

Acquisition Guide for Interactive Electronic Technical Manuals

This guidebook is designed as the primary desk reference for acquisition personnel who must acquire, develop, deliver, and manage Interactive Electronic Technical Manuals (IETMs). It incorporates the status of existing/planned DoD and Service-unique policy guidance, discusses current and projected technologies related to the production of IETMs, analyzes the relationships between IETMs and training, and addresses delivery vehicles, including the World Wide Web.

Online

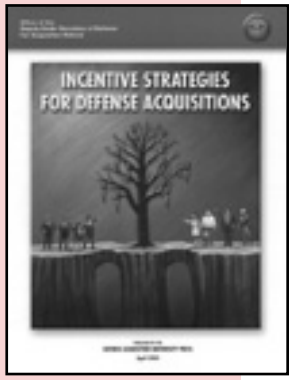
http://www.dsmc.dsm.mil/pubs/misc/ietm.htm

Printed Copy

To request a printed copy of *Acquisition Guide for Interactive Electronic Technical Manuals* (September 1999), choose one of three options: 1) Fax a written request to the DAU Publications Distribution Center at (703) 805-3726; 2) mail your request to Defense Acquisition University, Attn: AS-CI, 9820 Belvoir Road, Suite 3, Fort Belvoir VA 22060-5565; or 3) e-mail *jeff.turner@dau.mil*.

Incentive Strategies for Defense Acquisitions Guide

Printed on behalf of the Office of the Deputy Under Secretary of Defense for Acquisition Initiatives by the Defense Acquisition University Press



Incentives should exist in every business arrangement because they maximize value for all parties. DoD needs to adopt strategies that attract, motivate, and reward contractors to encourage successful performance. Using commercial practices will enhance DoD's ability to attract nontraditional contractors. This guide amplifies existing policy regarding use of incentives in defense acquisitions. It explores cost-based and noncost-based incentive strategies. It clearly defines use of performance objectives or product functionality vs. detailed requirements to seek best value acquisitions. It answers these questions:

- Why are we concerned with contractual incentives?
- What elements contribute to an effective incentive strategy?
- How can we build and maintain an effective environment for a successful business relationship?
- How can we build the acquisition business case?
- How can we build an incentive strategy that maximizes value?

Online

Available soon on the DAU Home Page at *www.dau.mil/pubs*.

Printed Copy

To request a printed copy of *Incentive Strategies for Defense Acquisitions* (April 2001), choose one of three options: 1) Fax a written request to the DAU Publications Distribution Center at (703) 805-3726; 2) mail your request to Defense Acquisition University, Attn: AS-CI, 9820 Belvoir Road, Suite 3, Fort Belvoir VA 22060-5565; or 3) e-mail *jeff.turner@dau.mil*.

Reduction of Total Ownership Costs (R-TOC)

Progress of Pilot Programs

DR. SPIROS G. PALLAS • MICHAEL J. NOVAK

The Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L]) established the Reduction of Total Ownership Costs (R-TOC) initiative in 1999. This effort grew out of concern for the rising costs of maintaining existing equipment that resulted in the depletion of DoD's equipment modernization accounts. (Our article, "Reduction of Total Ownership Costs [R-TOC]: Recent History and Future Prospects," which appeared in the November-December 2000 issue of *Program Manager* Magazine, more fully describes these early R-TOC efforts.)

USD(AT&L) Endorses Continuation of R-TOC

Since the inception of R-TOC, the administration has changed, bringing with it a change in DoD's senior leadership. However, if anything, the case for pursuing R-TOC has become more compelling. Secretary of Defense Donald Rumsfeld, testifying on July 16, 2001, before the House Appropriations Committee on the DoD budget, stated, "The U.S. Armed Services have been under-funded over a sustained period of years." He went on to say, "… the shortfalls are considerably worse than I had previously imagined."

As part of the effort to remedy this shortfall, USD(AT&L) Edward C. "Pete" Aldridge Jr. has endorsed continuation of the R-TOC initiative, and has established R-TOC savings achieved by the Pilot Programs as one of the AT&L metrics.

Pilot Program Activities

The USD(AT&L) instructed the Pilot Programs to focus their R-TOC plans

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based on three large potential savings areas:

- Reduced demand from weapon systems via reliability and maintainability improvements.
- Reduced supply chain response times, leading to reduced spares, system support footprint, and depot needs.

Every ownership dollar saved can be used to provide increased warfighting capabilities for DoD. Documenting the successes these R-TOC Pilot Programs have achieved will help other programs benefit from their experiences.

- Competitive sourcing of product support, leading to streamlining and overhead reduction.

Army

Figure 1 briefly summarizes some of the initiatives/practices/techniques that the Army Pilot programs are using. As an example of the detail that is available, the Heavy Expanded Mobility Tactical Truck (HEMTT) has three initiatives.

Initiative One

Initiative One has two primary goals: insertion of new technologies to improve vehicle performance, and reduction of Operations and Support (O&S) costs through replacement of high failure rate items.

Initiative Two

Initiative Two, a partnership with the Defense Logistics Agency (DLA) and the prime contractor, has resulted in significant cost reductions as 90 percent of the contracted items went under Direct Vendor Delivery (DVD), with a reduced cost recovery rate. The savings for the user are realized at the battalion level. HEMTT DVD coverage is continuing to rise throughout DLA.

Initiative Three

Initiative Three, Interactive Electronic Technical Manuals (IETMs), are on contract to provide improved maintenance capability.

Navy

Figure 2 lists some of the initiatives, practices, and techniques the Navy Pilot Programs are using to reach their R-TOC goals.

One of the Navy Pilots, the Multi-Mission Helicopter (H-60 series) program, includes three major stand-alone programs: H60B/F/H, MH-60R, and MH-60S. The H-60 R-TOC Pilot Program has used an "umbrella" strategy to meld

FIGURE 1. **Army Pilot Programs—Key R-TOC Activities**

Army Pilot	Approach (RM, SC, PS)	Key R-TOC Activities
Abrams Tank	RM-SC-PS	Recapitalization (through engine replacement) to improve reliability and improve O&S; public-private partnership
Apache Helicopter	RM	Major change in R-TOC approach (original primary activity—Prime Vendor Support [PVS]—dropped). Primary effort directed toward focused recapitalization
CH-47 Chinook Helicopter	RM-SC	Development of objective data system
Comanche Helicopter	RM-SC-PS	Design for reduced O&S costs; objective goals for hourly O&S operational costs
Crusader Self-Propelled Howitzer	RM-PS	Design cost trade-offs; design for reduced O&S (program undergoing major restructuring)
Fire Support C2	RM	Unified combat developer managing both acquisition and legacy requirements
Guardrail Common Sensor System (GCSS)	RM-PS	Agreements with various stakeholders on the operational performance of the system
Heavy Expanded Mobility Tactical Truck (HEMTT)	RM-SC-PS	Performance based contract partnership between DLA and Original Equipment Manufacturer (OEM)
High Mobility Artillery Rocket System (HIMARS)	RM-SC-PS	Scope of Pilot being redefined to encompass entire Multiple Launch Rocket System (MLRS) family
Integrated Target Acquisition System (ITAS)	PS	Contractor Logistics support

***RM** = R-TOC initiatives to improve reliability and maintainability; **SC** = R-TOC initiatives to reduce supply chain response time; **PS** = R-TOC initiatives to promote competitive product support*

these three individual programs into one R-TOC plan. The H-60 approach to R-TOC consists of four pillars:

One: Implement the Navy Helicopter Master Plan, which will significantly impact the entire Navy helicopter fleet.

Two: Improve products' Reliability/Maintainability/Safety via specific product initiatives.

Three: Improve response time by a combination of near-term initiatives (e.g., DVD contracts, Reliability Centered Maintenance, Integrated Maintenance Concept) and a long-term, competitively awarded, performance-based logistics effort.

Four: Improve acquisition system efficiency by pursuit of acquisition and logistics excellence initiatives.

Air Force

Many of the Air Force R-TOC Pilot Programs (Figure 3) are using incentives to improve contractor performance. Pilot programs such as the F-117, Joint Surveillance Target Attack Radar System (JSTARS), C-17, and others are providing long-term contracting periods if the contractor performs well. This provides the contractor the opportunity and incentive to make (often substantial) investments in improvements to processes and repair and replacement parts. Moreover, O&S costs are reduced and reliability is improved with associated improvements in readiness.

The C-17 program is committed to reducing total ownership costs through a number of initiatives, including multiyear procurement, flexible sustainment, and "Must Cost" programs. The Must Cost program, of particular interest here, is a collection of contractor-funded cost-reduction initiatives. The program is seeing an approximate 2.5 return on investment for the Must Cost initiatives.

Cost Savings

The 1999 Defense Planning Guidance stated that all acquisition programs were to establish a goal of reducing fiscal 2005 O&S costs by 20 percent, while maintaining or improving readiness. Early on, it was recognized that some of the programs would have difficulty meeting this goal. The developmental Pilot Programs focus on Life Cycle Costs (LCC), and the cost data reported reflected this fact.

All of the Pilot Programs were asked to provide a baseline from which the savings were to be measured. This baseline was constructed on the basis of "what would your costs be if you continued doing business the way you have been doing business."

Figure 4 provides an average, by Service, for the estimated savings in fiscal 2005. Simply averaging the percentage savings in the Pilot Programs by Service could convey the wrong picture from the standpoint of total savings, so these data should not be used to judge the "goodness" of any Service effort. On the other hand, it is instructive to see how the Services are tracking relative to the 20 percent goal. Using the data provided in the July 2001 quarterly reports, and assigning 0 percent savings for programs that did not provide that report, we arrive at the summary in Figure 4.

Noting that some of these numbers include life cycle savings as opposed to fiscal 2005 savings, these data point out that—over all types of programs in various acquisition stages—some will not meet the 20 percent goal. Figure 4, however, clearly reflects that the R-TOC effort does document that the Services are working toward seriously reducing costs.

In many cases, the efforts and investments made by the programs will eventually yield large savings. Often, however, this can only be demonstrated by looking at what will happen over the 20- to 30-year life cycle of the system. In a number of cases, these data reveal that changes now will reap their major

FIGURE 2. **Navy Pilot Programs—Key R-TOC Initiatives**

Navy Pilot	Approach (RM, SC, PS)	Key R-TOC Activities
Advanced Assault Amphibious Vehicle (AAAV)	RM-SC-PS	Design for producibility
Aegis Cruiser	RM	Reduction of manpower needs through technology insertion
Aviation Support Equipment (ASE)	RM-SC-PS	Performance Based (PB) logistics support with cost-reduction/reliability improvement incentives
CVN-68 Nimitz Class Carrier	RM	Dissemination of R-TOC results; O&S cost reduction while improving Quality of Life (QOL)
Common Ship	RM-SC	Dissemination of R-TOC results; O&S cost reduction while improving QOL
EA-6B Prowler Aircraft	RM-SC-PS	Reliability centered maintenance; performance based support agreements
H-60 Multi-Mission Helicopter	RM-SC-PS	Reduction of logistics requirements by consolidating makes/models; DVD supply contract
LPD-17 Class Carrier	RM-SC-PS	Design for reduced O&S costs; Integrated Product Data Environment (IPDE)
Medium Tactical Vehicle Replacement (MTVR)	RM-PS	Non-Developmental Item (NDI) system; PB support partnership
Standoff Land Attack Missile—Expanded Response (SLAM-ER)	SC	NDI system; elimination of I-level maintenance

***RM** = R-TOC initiatives to improve reliability and maintainability; **SC** = R-TOC initiatives to reduce supply chain response time; **PS** = R-TOC initiatives to promote competitive product support*

benefits beyond fiscal 2005. It simply takes time for savings to occur.

Figure 5 shows the estimated savings reported by each program that could measure savings against an accepted baseline. In some cases, the data reported are actually for life cycle savings as opposed to fiscal 2005 savings. To honor the "non-attribution agreement," numbers are used instead of program names. The data are not grouped by Service. The goal of 20 percent in fiscal 2005 is also indicated in Figure 5.

The large spread in the data results, in part, from the mix of Pilot Programs. Fielded systems, with virtually no room for system redesigns, tend to show the lowest numbers. Note that this is not always the case, though. For the Navy's H-60 program covered earlier, significant savings are expected because of the development of a master plan that reduces the number of various aircraft types.

In virtually every Pilot Program, additional investment in an initiative results in more combat capability for that system, as well as cost savings or cost avoidance.

An example of this is replacing a current subsystem with one that is more reliable. Repair costs go down as reliability improves, but the fact is that the warfighter has the equipment available to do the mission instead of having it down for repairs—thus resulting in more reliability and increased readiness. Further, maintenance personnel, who are often overworked, are freed-up to further improve the readiness of other systems.

Although the Services and OSD have provided new money for various programs in the name of R-TOC, the funds available have not met all of the requests. Program managers have often said that they "somehow and in some cases" were able to squeeze the funds to implement a good idea out of existing funds.

Others have provided contract incentives—like long-term partnering—as motivation for industry to work with the government to improve defense products.

Life cycle savings for the R-TOC Pilot Programs will be substantial. They have proven the potential savings that can be achieved ... Every ownership dollar saved can be used to provide increased warfighting

Investment funds are needed for many R-TOC initiatives, but not always available. This fact, however, has not stopped the Pilot Programs from implementing good ideas within the existing structure.

Sharing Information

The R-TOC Pilot Programs participate in a series of Pilot Program Forums, which allow a free exchange of ideas among the Pilot Programs. The data from these Forums are generally not available, as stated previously. In some cases, though, the Services themselves provided these data and other data freely though Web-based means.

Representatives from all Pilot Programs are invited to each Forum, but only about one-fourth of the Pilot Program representatives are requested to brief at a particular Forum. Initially, representatives from the programs presented overview briefings that focused on how they were approaching the 20 percent goal. Some Forums have focused on a specific topic, which has allowed Pilot Programs to benefit from the experience of other Pilots facing similar challenges. Specific topics of past R-TOC Forums have included: performance based logistics support, incentives, legislative/regulatory barriers, and R-TOC tools.

Senior leadership from the Services and OSD attend these Forums to provide their support and to gain a first-hand impression of the progress of the Pilot Programs. The USD -AT&L has attended in the past. Most recently, Principal Deputy Under Secretary of Defense (AT&L) Mike Wynne has attended the last two Forums to address the participants.

Lessons Learned, Best Practices

While the direct cost savings achieved by the Pilot Programs as a result of their R-TOC activities are important to DoD, this is not the only important result of the R-TOC program. An equally important purpose of the R-TOC Pilots is to attempt a wide variety of R-TOC initiatives and to document the ones that work so that they can be applied by other DoD programs. An example from each Service follows.

Army

The Abrams Tank System developed several innovative government-industry partnerships to improve R&M. The first of these is the Partnership for Reduced O&S Costs, Engine (PROSE) initiative to rebuild the existing AGT 1500 tank engine. PM Abrams, Tank-automotive and Armaments Command (Anniston Army Depot), and Honeywell have implemented this partnership in order to reduce the number of players, provide management focus, and help incorporate best commercial practices and performance specifications.

Under PROSE, Honeywell is responsible for program/project management, project engineering, customer support, supply chain management, field service engineering, and quality assurance. TACOM has responsibilities for repair overhaul, testing, failure analysis, and sustainment management.

The PROSE process is expected to improve reliability by 30 percent. The potential benefits of deploying a new en-

FIGURE 3. **Air Force Pilot Programs—Key R-TOC Activities**

Air Force Pilot	Approach (RM, SC PS)	Key R-TOC Activities
Air Warning and Control System (AWACS)	RM-SC-PS	Replacement of low-reliability components and subsystems
B-1B Long-Range Bomber Aircraft	RM-SC-PS	Wide range of cost-reduction initiatives
C-5 Cargo-Troop Transport Aircraft	RM-SC	Virtual prime vendor with DLA and prime contractor agreement
C-17 Cargo Aircraft	RM-SC-PS	Flexible sustainment; Performance Based (PB) support contract; Must Cost; multi-year contracting
C/KC-135 Stratotanker Aircraft	RM-SC-PS	Commercial Off-the-Shelf (COTS) electronics upgrade w/10-year warranty
Cheyenne Mountain (NORAD Combat Operations Center)	RM-PS	Total System Performance Responsibility (TSPR) contract
F-16 Tactical Fighter Aircraft	RM-SC-PS	Supplier performance agreements and cost-reduction initiatives
F-117 Stealth Fighter Aircraft	RM-SC-PS	TSPR contract w/cost-reduction incentives
Joint Surveillance Target Attack Radar System (JSTARS)	RM-PS	Contractor integration of support management; simulation model for readiness cost trade-offs
Space Based Infrared Systems (SBIRS)	RM-SC-PS	Cost As an Independent Variable (CAIV) analyses; retirement/consolidation of old systems

***RM** = R-TOC initiatives to improve reliability and maintainability; **SC** = R-TOC initiatives to reduce supply chain response time; **PS** = R-TOC initiatives to promote competitive product support*

gine (which is now under development) are much more dramatic—the Army could achieve a four to fivefold improvement in reliability, a 35 percent reduction in fuel consumption, a 42 percent reduction in the number of parts, and a 15-20 percent improvement in vehicle mobility. Life cycle engine O&S costs are projected to drop from $16 billion over 30 years with the current engine, to $3 billion with the new engine.

The Abrams Integrated Management (AIM) initiative is an innovative partnership between Anniston Army Depot and General Dynamics Land Systems (GDLS) to rebuild M1A1 tanks (the oldest Abrams models) to original factory standards, applying all Maintenance Work Orders. Although the tanks are delivered in "like new" condition, they still operate with 1980s' technology; however, AIM also provides a cost-effective opportunity for selective upgrades. The overhauled tanks are expected to result in an 18 percent annual O&S cost savings, while improving operational readiness.

Air Force/Navy

The Aviation Support Equipment Pilot Program developed the Consolidated Service Program (CSP), a comprehensive depot-repair agreement for Consolidated Automated Support System (CASS) station component repair.The original CSP contract was signed with Lockheed Martin Information Systems (LMIS) in April 2000. The contract is an eight-year basic agreement for LMIS to provide services to multiple agencies. The contract is renegotiated annually based on actual demand, and the program office is planning to expand this type of contract to other CASS subsystems. The CSP contract requires 24-hour support for all Broad Arrow requisitions (failures that result in equipment grounding), and 30-day turn-around time for non-Broad-Arrow requisitions. The contractor holds wholesale inventory. The contract provides an incentive award fee for improved reliability.

The coverage of the CSP agreement is being expanded to include the CASS electro-optical configuration and the CASS High Power Operational Capability ancillary asset. Discussions with the U.S. Air Force are also ongoing to investigate the feasibility of implementing a similar agreement for depot repair of the U.S. Air Force and U.S. Navy Joint Service Electronic Countermeasures System Tester (JSECST) program in fiscal 2002.

Initial production of the JSECST was approved in April 2001 when it passed Milestone III. The anticipated results of these contracts include faster turn-around time for requisitions, reduced cost, on-site support availability, and improved reliability.

Air Force

The F-117 TSPR contract was designed to reduce sustainment and support cost for the F-117 fleet with no impact to the warfighter's combat capabilities. The focus of the contract is to eliminate duplicative support infrastructures and move the non-core weapon system integrator task from the government to private industry.

The key elements of this strategy are a performance-based sustainment contract between the government and the contractor, with a contract clause incentivizing the contractor to reduce TOC. Under this approach the contractor assumes responsibilities in general administration, warehousing, spares procurement, repair decisions, and sustainment engineering tasks, while the government retains its core responsibilities.

Performance-based metrics were developed between the warfighter, the program office, and the contractor where all organizations could monitor contract performance with minimal manpower. This streamlined evaluation process al-

FIGURE 4. **Estimated Fiscal 2005 Savings by Service (July 2001 Reports)**

Reporting Service	Average Estimated Fiscal 2005 Savings
U.S. Army	12%
U.S. Navy	18%
U.S. Air Force	10%

lows the government to relinquish its traditional role of oversight and institutionalize a role of insight.

The TSPR contract provides incentives to reduce total ownership costs. The contract type is a Cost Plus Incentive Fee (CPIF), with an award fee feature, which allows contractors to receive an incentive fee if they meet the performance metrics and if they are on or below target cost. They also share with the government 50/50 on any cost under-run or over-run. Measurable results fit into three different categories: personnel savings, savings due to stabilized funding, and contract under-runs.

Top Five Barriers to R-TOC

DoD's new leadership asked the Pilot Programs to identify the key barriers to R-TOC implementation. Although the Pilot Programs encompass a wide variety of systems at every stage of the acquisition process, there was substantial agreement about the key barriers. The five top perceived barriers identified by the Pilot Programs are prioritized below:

One: Restrictive year/color of money requirements (e.g., annual funding, limits on appropriations categories, and reprogramming restrictions and thresholds).

Two: Inadequate processes/tools to measure savings and perform trade-offs (e.g., LCC databases and LCC analysis tools).

Three: Lack of capital funds/seed money to explore and develop R-TOC initiatives (e.g., a significant R-TOC Program Budget Decision and an OSD-controlled fund for R-TOC investments, or a Service source of funding).

Four: No guarantee that saved dollars can be used by the program that saved the dollars (i.e., an R-TOC savings reinvestment policy is needed).

Five: Limited PM control of program life cycle funding (e.g., control of O&S funds for up-front investments to decrease LCC and control of sustaining engineering funds).

All five of the top perceived barriers have been discussed at the highest leadership levels. No. 3, for example, has resulted in some additional funds being provided to the Service-selected priority programs. The problem identified in No. 1 is being addressed by Aldridge's Business Improvements Council, which recently approved a variety of legislative proposals to improve budget flexibility.

TOC Dollars Saved

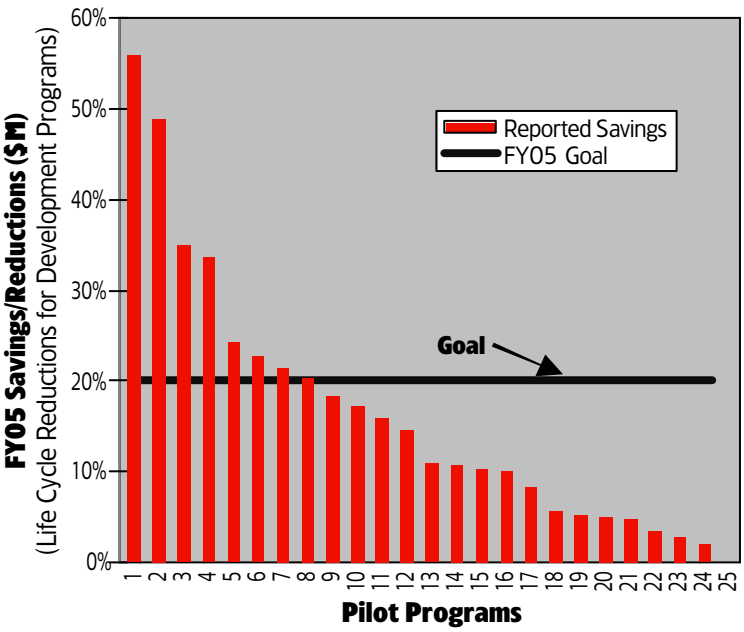
While not all of the R-TOC Pilot Programs are likely to achieve the established O&S cost savings goal for fiscal 2005, they are making important contributions to DoD. Life cycle savings for the Pilot Programs will be substantial. They have proven the potential savings that can be achieved through more effective use of trade-off models, investments in higher reliability components and subsystems, designing systems for reduced O&S costs, and improved logistics support practices, while increasing readiness.

Every ownership dollar saved can be used to provide increased warfighting capabilities for DoD. Documenting the successes these Pilot Programs have achieved will help other programs benefit from their experiences.

The Pilot Programs' successes are building an infrastructure of support for these practices within the acquisition, logistics, and warfighting communities. While investments for initiatives have been modest, the Services are increasingly supportive, and funding levels for ownership cost-reduction initiatives are increasing.

Editor's Note: The authors welcome questions or comments on this article. Contact Pallas at *spiros.pallas@osd.mil*; contact Novak at *michael.novak@osd.mil*.

FIGURE 5. **Projected Savings for Pilot Programs**



NDIA-DAU Joint Venture Nets NDIA Recognition Awards for Two DAU Professors

Charles "Chuck Cochrane (second from right), DAU Director, Center for Program Management, Curriculum Development and Support Center (CDSC); and Gary Hagan (right), DAU Program Manager, Center for Program Management, CDSC, receive congratulations from DAU Air Force Chair Tony Kausal (left) and DAU Researcher James "Jim" Dobbins. Both Cochrane and Hagan received NDIA Recognition Awards on Dec. 4.
Photo by Army Sgt. Kevin Moses

Charles "Chuck" Cochrane and Gary Hagan were recently honored by the National Defense Industrial Association (NDIA) for their efforts in educating Defense Industry Managers. Cochrane is the DAU Director, Center for Program Management, Curriculum Development and Support Center (CDSC); and Hagan is the DAU Program Manager, Center for Program Management, CDSC, at Fort Belvoir, Va.

At a ceremony held on Dec. 4 in the DAU Headquarters, retired Army Maj. Gen. Paul Greenberg, Vice President of Operations at NDIA, presented NDIA Recognition Awards to both professors. Cochrane and Hagan are teaching four, one-week courses in Defense Systems Acquisition Management (DSAM) each year for Defense Industry Managers at four different sites throughout the United States. In addition to their regular duties at DAU, for 2002 they will teach four DSAM courses in Nashville, San Diego, Minneapolis, and Orlando to an average of 35 students per course. Cochrane has supported DSAM since its inception in 1989; he was Course Director until 1993. Hagan became Course Director in 1993, serving until 2000. (Army Lt. Col. Chris Fry is the current Course Director.)

Also present to honor Cochrane and Hagan were DAU Industry Chair Frank Swofford and DAU Commandant Col. (P) James Moran.

IN MEMORIAM

Lt. Col. Bernard J. "JW" Witten, USA (Ret.)

The Defense Acquisition University has received word of the death of retired Army Lt. Col. Bernard J. "JW" Witten, 51, on Nov. 11, 2001, after an extended illness. JW lived and worked at Fort Belvoir, Va., where he was a Professor of Contract Management in the Faculty Division of the Defense Systems Management College (DSMC). During his DSMC tenure, he established a strong liaison between the Contract Management Department and the Small Business Administration. Popular with students, JW not only gave quality instruction in the classroom, but also managed one of the Contracting Department's key simulations. He had recently retired from the Army in June 2001 after 27 years of military service. Upon his retirement, he was awarded the Defense Meritorious Service Medal.

JW is survived by his wife, Dorothy, and four children: son, Marcus; son, Maurice; daughter, Maya; and son, Michael. He is also survived by his mother, Annette Thompson.

Fourteenth Annual International Acquisition/Procurement Seminar — Atlantic (IAPS-A)

July 8-12, 2002

Sponsored by the International Defense Educational Arrangement (IDEA) in Paris, France

Topics

- **International Program Managers: Government and Industry**
- **Trans–Atlantic Cooperation**
- **International Acquisition Practices**
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No seminar fee for qualified participants.

For further information, contact any member of DSMC's IDEA Team: (703) 805-5196 or Visit our Web site: http://www.dsmc.dau.mil/international/international.htm

The Fourteenth Annual Acquisition/Procurement Seminar—Atlantic (IAPS-A) will focus on international acquisition practices, Trans-Atlantic Cooperation, and Government and Industry Program Managers. The seminar is sponsored by the International Defense Educational Arrangement (IDEA), which consists of the defense acquisition educational institutions in France, the United States, the United Kingdom, and Germany.

Those eligible to attend are Ministries, Departments of Defense, and supporting Defense Industries from the four IDEA nations who are actively engaged in international defense acquisition programs.

This year's seminar will be held July 8-12, 2002, in Paris, France. The last day of the seminar, July 12, will be dedicated to the educational aspects of international acquisition.

The IAPS-A is by invitation only. Those desiring an invitation who have not attended past international seminars should submit a letter of request, on government or business letterhead, to DSMC by fax.

Invitations, confirmations, and joining instructions will be issued after May 1, 2002.

To register, visit the seminar Internet Web site at http://www.dsmc.dau.mil/international/international.htm.

Contact an IDEA Team member for additional seminar information:

In U.S.:

- Prof. Don Hood, Director,International Acquisition Courses (don.hood@dau.mil)
- Sharon Boyd, Projects Specialist (sharon.boyd@dau.mil)

Comm: (703) 805-5196/4593
DSN: 655-5196/4593
Fax: (703) 805-3175 or
DSN: 655-3175

In Paris, France:

Dr. Gertrud Humily, Executive Director, International Education (gertrud.humily@dga.defense.gouv.fr)

Telephone: (33) 1 45-52-55-09
Fax: (33) 1 45-52-69-64

Wartime Setting Marks Aldridge's First Address to a DAU Graduating Class

Sanctioning the Status Quo Not an Option

COLLIE J. JOHNSON

September 11 is now the "elephant in the drawing room" for DoD's leaders. Whether it be a change of command, a promotion ceremony, an awards ceremony, a conference presentation, a graduation—no matter what the occasion, all roads lead back to 9/11 and the cowardly terrorist attacks that shook the nation.

E.C. Pete Aldridge Jr., the USD(AT&L), didn't ignore the "elephant" as he addressed 235 graduates of DAU's Advanced Program Management Course (Class 01-3) on Dec. 14. Indeed, he stated in no uncertain terms his wartime expectations of the first "PMs in waiting" to graduate since the Sept. 11 attacks.

Think Anew and Act Anew

"I will expect you to think anew and act anew when you report for work. In a word, I expect innovation…I will expect you to scrub our initiatives and programs to identify all those activities or practices that slow the process."

Aldridge told the graduates that perhaps they will find that DoD is wasting too much time and resources with redundant documentation, unnecessary meetings, superfluous systems capabilities, convoluted oversight, or excessive coordination.

"If you spend the next 30 years in acquisition," he encouraged them, "there may never be a better chance to translate this particular sentiment into reality."

Aldridge said that within AT&L, the war will either prove a "springboard to transformation or it will sanction the status quo." He predicted it would not be the latter result.

Acknowledging that DoD's problems in Defense acquisition programs are many, he cited cost overruns, long cycle times, an ever-shrinking workforce, and a defense industrial base that has little incentive to do business with DoD. He spoke of a paralyzing focus on the hundred percent solution in systems development; weapons and infrastructure priorities that cannot seem to join DoD in the post-Cold War world; and a wartime need for high-tech research and development from a community that has suffered years of neglect, under-resourcing, and brain-drain.

Complacency Kills

Reflecting back to Sept. 10—one day prior to the attacks—Aldridge mentioned the speech he was delivering at an Acquisition and Logistics Excellence Week kickoff ceremony. He had cautioned the AT&L workforce that day against *complacency*, pointing out that three of our nation's last five major wars came as surprises.

He could never have imagined his words would prove so prophetic. The next day he found himself amending those numbers to four of six.

"Each of you," he told the graduates, "will soon take your place behind one of the many oars that propel this massive ship toward its destination. Take care not to endanger our ship and crew

Under Secretary of Defense (Acquisition, Technology & Logistics) Edward C. "Pete" Aldridge Jr. addresses the graduates of APMC 01-3, Dec. 14, 2001, at Scott Hall, Fort Belvoir, Va.

Photo by Army Sgt. Kevin Moses

***Johnson** is Managing Editor,* Program Manager *Magazine, Defense Acquisition University, Fort Belvoir, Va.*

to the *complacency* that often accompanies a desk-bound job."

Sizable Challenges

An effective leader, he said, will build initiative and creativity in subordinates by assigning objectives, and then abstaining from micromanaging the solutions. Putting his words into action, he threw out some sizable challenges for the graduates to reflect on between now and when they report to work:

Take Care of Your People

Aldridge told the graduating class to be "ferocious" in the standards by which they take care of their people. "Government service will never compete with private industry paycheck to paycheck, but there are many young people out there for whom material reward is not life's alpha and omega. You are probably among them."

Paralysis by Analysis

Aldridge agrees with the President's assertion that the conflict in Afghanistan has taught the nation more about the future of the military than a decade of blue ribbon panels and think-tank symposiums. "It just may mean an end," he said, "to the kind of 'paralysis by analysis' that has vexed the introduction of so many promising systems, concepts, and technologies over the years."

"If ever there was an asymmetric, technology-dependent war, the one we are currently waging is certainly it…When the nation's enemies are all around us, even within our own borders, leverage and force multiplication are no longer luxuries—they are requirements."

—E.C. "Pete" Aldridge Jr.
USD(AT&L)

Hard Decisions

Every Service and every constituency of the nation's military, he told the graduates, must be willing to sacrifice some of their own pet projects. Aldridge, as does the President, believes that our war on terror cannot be used to justify obsolete bases, obsolete programs, or obsolete weapon systems.

Asymmetric, Technology-Dependent War

"If ever there was an asymmetric, technology-dependent war, the one we are currently waging is certainly it…When the nation's enemies are all around us, even within our own borders, leverage and force multiplication are no longer luxuries—they are requirements," Aldridge stated.

The key to achieving leverage and force multiplication, he believes, is technology. "Keep your eyes on the prize," he emphasized. "We seek nothing less than the redefinition of war on our terms."

Interoperability

Aldridge urged the graduating class to watch carefully for opportunities to initiate or enhance interoperability. "I will be looking to you to pursue networks rather than autonomous systems. What opportunities can you think of to purchase services instead of hardware? I expect you to more closely approximate available technology to mission needs. And I expect you to bring requirements 'creep' under control in systems development and acquisition."

Metrics

"You cannot manage what you cannot measure," Aldridge stated. Explaining that DoD will soon have in place a set of metrics, he anticipates that these metrics will be tremendously helpful in measuring the Department's progress toward his five goals and the AT&L community's overall standard of *Acquisition and Logistics Excellence*.

Exercise innovation, creativity, and risk, he counseled. "The pressure is on—results, not promises, will provide the benchmarks. I'm open to any new ideas that you may have about how we can improve the process."

Risk Management

Reject risk aversion in favor of risk management, Aldridge said. "I challenge you to show both taxpayer and appropriator alike just what war-winning technologies we can produce for their sons and daughters.

"If we are not going to take these risks now—then when? If we are not going to transform now—then when? Our leaders—and the free people they serve—demand that this war not sanction the status quo."

Our Clarion Call

"*No fair fights* is our clarion call," Aldridge said. "Our premise is that parity means casualties." He reminded the graduating class that, no matter what their specific task—from hard science to records maintenance—we all are in the same business. And though during times of peace we may sometimes believe we are in the *technology* business, current circumstances demonstrate that we are not.

"We are no more in the technology business that a paramedic is in the ambulance business," he emphasized. "News reports remind us on a daily basis that we—every one of us—are in the *victory* business."

Wars, Aldridge said, have a nasty but reliable habit of taking on lives of their own. They dart this way and that, turn at 90-degree angles, and change character and tone like a chameleon.

"This is what makes overconfidence and complacency so dangerous," he warned the graduates. By extension, this is what makes the work you are about to begin so imperative. I know that every one of you is up to the task.

Editor's Note: Download the entire text of Aldridge's Dec. 14, 2001, speech to the graduates of APMC 01-3 from *ACQWeb*, the USD(AT&L) Web Site, at *http://www.acq.osd.mil/usd/index.html*).

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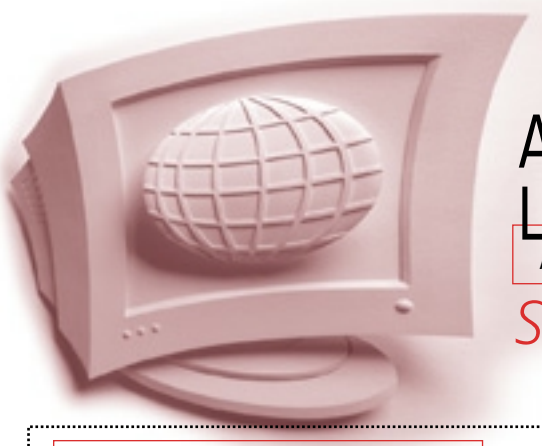

ACQUISITION & LOGISTICS EXCELLENCE

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net

DEPARTMENT OF DEFENSE

Under Secretary of Defense (Acquisition, Technology and Logistics) (USD[AT&L])
http://www.acq.osd.mil/
ACQWeb offers a library of USD(AT&L) documents, a means to view streaming videos, and jump points to many other valuable sites.

Director, Acquisition Initiatives (AI)
http://www.acq.osd.mil/ar
Acquisition news and events; reference library; AI organizational breakout; acquisition education and training policy and guidance.

DoD Inspector General
http://www.dodig.osd.mil/pubs/index.html
Search for audit and evaluation reports, Inspector General testimony, and planned and ongoing audit projects of interest to the acquisition community.

Deputy Director, Systems Engineering, USD (AT&L/IO/SE)
http://www.acq.osd.mil/io/se/index.htm
Systems engineering mission; Defense Acquisition Workforce Improvement Act information, training, and related sites; information on key areas of systems engineering responsibility.

Defense Acquisition Deskbook
http://web1.deskbook.osd.mil
Automated acquisition reference tool covering mandatory and discretionary practices.

Defense Acquisition History (DAH) Project
http://www.army.mil/cmh-pg/acquisition/acqhome.htm
The DAH Project is a multi-year program to produce a detailed history of defense acquisition since 1947, to be published in six volumes. The site features a quarterly online newsletter, project status announcements, acquisition history links, and contact information.

Defense Acquisition University (DAU)
http://www.dau.mil
DAU Course Catalog, *Program Manager* magazine and *Acquisition Review Quarterly* journal; course schedule; policy documents; and training news from the Defense Acquisition Workforce.

Defense Acquisition University Virtual Campus
https://dau1.fedworld.gov
Take DAU courses online at your desk, at home, at your convenience!

Army Acquisition Corps (AAC)
http://dacm.rdaisa.army.mil
News; policy; publications; personnel demo; contacts; training opportunities.

Army Acquisition
http://acqnet.saalt.army.mil
A-MART; documents library; training and business opportunities; past performance; paperless contracting; labor rates.

Navy Acquisition Reform
http://www.acq-ref.navy.mil/
Acquisition policy and guidance; World-class Practices; Acquisition Center of Excellence; training opportunities.

Navy Acquisition, Research and Development Information Center
http://nardic.onr.navy.mil
News and announcements; acronyms; publications and regulations; technical reports; "How to Do Business with the Navy"; much more!

Naval Sea Systems Command
http://www.navsea.navy.mil/sea017/toc.htm
Total Ownership Cost (TOC); documentation and policy; Reduction Plan; Implementation Timeline; TOC reporting templates; Frequently Asked Questions.

Navy Acquisition and Business Management
http://www.abm.rda.hq.navy.mil
Policy documents; training opportunities; guides on areas such as risk management, acquisition environmental issues, past performance, and more; news and assistance for the Standardized Procurement System (SPS) community; notices of upcoming events.

Navy Best Manufacturing Practices Center of Excellence
http://www.bmpcoe.org
A national resource to identify and share best manufacturing and business practices being used throughout industry, government, and academia.

Space and Naval Warfare Systems Command (SPAWAR)
https://e-commerce.spawar.navy.mil
Your source for SPAWAR business opportunities, acquisition news, solicitations, and small business information.

Joint Interoperability Test Command (JITC)
http://jitc.fhu.disa.mil
Policies and procedures for interoperability certification. Access to lessons learned; link for requesting support.

Air Force (Acquisition)
http://www.safaq.hq.af.mil/
Policy; career development and training opportunities; reducing TOC; library; links.

Air Force Materiel Command (AFMC) Contracting Laboratory's Federal Acquisition Regulation (FAR) Site
http://farsite.hill.af.mil/
FAR search tool; *Commerce Business Daily* Announcements (CBDNet); *Federal Register;* Electronic Forms Library.

Defense Systems Management College (DSMC)
http://www.dsmc.dau.mil
DSMC educational products and services; course schedules; job opportunities.

Defense Advanced Research Projects Agency (DARPA)
http://www.darpa.mil
News releases; current solicitations; "Doing Business with DARPA."

Defense Information Systems Agency (DISA)
http://www.disa.mil
Structure and mission of DISA; Defense Information System Network; Defense Message System; Global Command and Control System; much more!

National Imagery and Mapping Agency
http://www.nima.mil
Imagery; maps and geodata; Freedom of Information Act resources; publications.

Defense Modeling and Simulation Office (DMSO)
http://www.dmso.mil
DoD Modeling and Simulation Master Plan; document library; events; services.

Defense Technical Information Center (DTIC)
http://www.dtic.mil/
Technical reports; products and services; registration with DTIC; special programs; acronyms; DTIC FAQs.

Defense Electronic Business Program Office (DEBPO)
http://www.defenselink.mil/acq/ebusiness/
Policy; newsletters; Central Contractor Registration; Assistance Centers; DoD EC Partners.

Open Systems Joint Task Force
http://www.acq.osd.mil/osjtf
Open Systems education and training opportunities; studies and assessments; projects, initiatives and plans; reference library.

Government Education and Training Network (GETN) (For Department of Defense Only)
http://atn.afit.af.mil
Schedule of distance learning opportunities.

Government-Industry Data Exchange Program (GIDEP)
http://www.gidep.corona.navy.mil
Federally funded co-op of government-industry participants, providing an electronic forum to exchange technical information essential to research, design, development, production, and operational phases of the life cycle of systems, facilities, and equipment.

ACQUISITION & LOGISTICS EXCELLENCE

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Surfing the Net

FEDERAL CIVILIAN AGENCIES

Acquisition Reform Network (ARNET)
http://www.arnet.gov/
Virtual library; federal acquisition and procurement opportunities; best practices; electronic forums; business opportunities; acquisition training; Excluded Parties List.

Committee for Purchase from People Who are Blind or Severely Disabled
http://www.jwod.gov
Provides information and guidance to federal customers on the requirements of the Javits-Wagner-O'Day (JWOD) Act.

Federal Acquisition Institute (FAI)
http://www.faionline.com
Virtual campus for learning opportunities as well as information access and performance support.

Federal Acquisition Jump Station
http://nais.nasa.gov/fedproc/home.html
Procurement and acquisition servers by contracting activity; CBDNet; Reference Library.

Federal Aviation Administration (FAA)
http://www.asu.faa.gov
Online policy and guidance for all aspects of the acquisition process.

General Accounting Office (GAO)
http://www.gao.gov
Access to GAO reports, policy and guidance, and FAQs.

General Services Administration (GSA)
http://www.gsa.gov
Online shopping for commercial items to support government interests.

Library of Congress
http://www.loc.gov
Research services; Congress at Work; Copyright Office; FAQs.

National Technical Information Service (NTIS)
http://chaos.fedworld.gov/onow/
Online service for purchasing technical reports, computer products, videotapes, audiocassettes, and more!

Small Business Administration (SBA)
http://www.SBAonline.SBA.gov
Communications network for small businesses.

U.S. Coast Guard
http://www.uscg.mil
News and current events; services; points of contact; FAQs.

TOPICAL LISTINGS

Committee for Purchase From People Who are Blind or Severely Disabled
http://www.jwod.gov
Provides information and guidance to federal customers on the requirements of the Javits-Wagner-O'Day (JWOD) Act.

MANPRINT (Manpower and Personnel Integration)
http://www.MANPRINT.army.mil
Points of contact for program managers; relevant regulations; policy letters from the Army Acquisition Executive; as well as briefings on the MANPRINT program.

DoD Specifications and Standards Home Page
http://www.dsp.dla.mil
All about DoD standardization; key Points of Contact; FAQs; Military Specifications and Standards Reform; newsletters; training; nongovernment standards; links to related sites.

Joint Advanced Distributed Simulation (JADS) Joint Test Force
http://www.jads.abq.com
JADS is a one-stop shop for complete information on distributed simulation and its applicability to test and evaluation and acquisition.

Risk Management
http://www.acq.osd.mil/io/se/risk_management/index.htm
Risk policies and procedures; risk tools and products; events and ongoing efforts; related papers, speeches, publications, and Web sites.

Earned Value Management
http://www.acq.osd.mil/pm
Implementation of Earned Value Management; latest policy changes; standards; international developments; active noteboard.

Fedworld Information
http://www.fedworld.gov
Comprehensive central access point for searching, locating, ordering, and acquiring government and business information.

GSA Federal Supply Service
http://pub.fss.gsa.gov
The No. 1 resource for the latest services and products industry has to offer.

Commerce Business Daily
http://www.govcon.com/
Access to current and back issues with search capabilities; business opportunities; interactive yellow pages.

INDUSTRY AND PROFESSIONAL ORGANIZATIONS

DAU Alumni Association
http://www.dsmcaa.org
Acquisition tools and resources; government and related links; career opportunities; member forums.

Electronic Industries Alliance (EIA)
http://www.eia.org
Government Relations Department; includes links to issue councils; market research assistance.

National Contract Management Association (NCMA)
http://www.ncmahq.org
"What's New in Contracting?"; educational products catalog; career center.

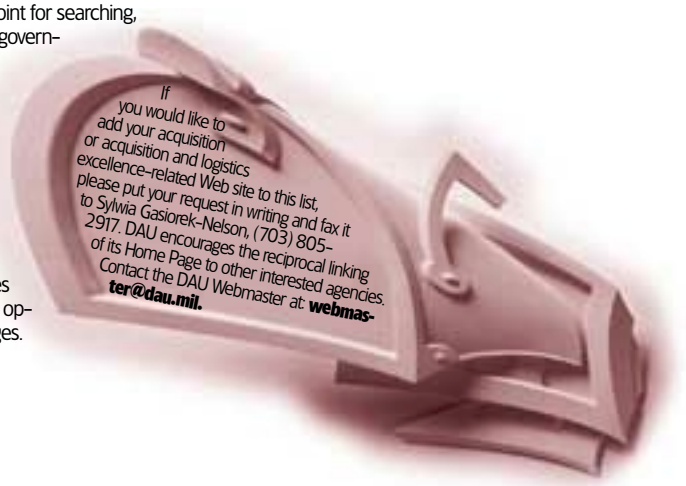
National Defense Industrial Association (NDIA)
http://www.ndia.org
Association news; events; government policy; *National Defense* magazine.

International Society of Logistics
http://www.sole.org/
Online desk references that link to logistics problem-solving advice; Certified Professional Logistician certification.

Computer Assisted Technology Transfer (CATT) Program
http://catt.bus.okstate.edu
Collaborative effort between government, industry, and academia. Learn about CATT and how to participate.

Software Program Managers Network
http://www.spmn.com
Site supports project managers, software practitioners, and government contractors. Contains publications on highly effective software development best practices.

Association of Old Crows (AOC)
http://www.crows.org
Association news; conventions, conferences and courses; *Journal of Electronic Defense* magazine.



Program Manager Writer's Guidelines in Brief (http://www.dau.mil/pubs/pubs-main.htm)

Purpose

The purpose of *Program Manager* Magazine is to instruct members of the DoD Acquisition, Technology & Logistics (AT&L) Workforce and Defense Industry on policies, trends, legislation, senior leadership changes, events, and current thinking affecting program management and defense systems acquisition, and to disseminate other information pertinent to the professional development and education of the DoD Acquisition Workforce.

Subject Matter

Subjects may include, but are not restricted to, all aspects of program management; professional and educational development of DoD's AT&L Workforce; acquisition and logistics excellence; Defense industrial base; research and development; test and evaluation; modeling and simulation; commercial best business practices; and interviews with Government-Industry Defense executives.

Program Manager is not a forum for academic papers, fact sheets, technical papers, or white papers (these are typically recognized by their structured packaging, e.g., Introduction, Background, Discussion, Methodology, Recommendations, Conclusions). Such papers are more suited for DAU's journal, *Acquisition Review Quarterly*. *Program Manager* Magazine publishes, for the most part, feature stories that include real people and events. Stories that appeal to our readers—who are senior military personnel, civilians, and defense industry professionals in the program management/acquisition business—are those taken from real-world experiences vs. pages of researched information.

Good writing sounds like comfortable conversation. Write naturally and avoid stiltedness. Except for a rare change of pace, most sentences should be 25 words or less, and paragraphs should be six sentences. Vary your syntax. Avoid falling into the trap of writing one declarative sentence after another. Package your article with liberal use of subheads.

Length of Articles

Program Manager is flexible regarding length, but articles most likely to be published are generally 2,000-3,000 words or about 10 double-spaced pages, each page having a 1-inch border on all sides. However, do not be constrained by length requirements; tell your story in the most direct way, regardless of length. Do not submit articles in a layout format, nor should articles include any footnotes, endnotes, or references. *Be sure to define all acronyms.*

Photos and Illustrations

Articles may include figures, charts, and photographs. They must, however, be in a separate file from the article. Photos must be black and white or color. *Program Manager* does not guarantee the return of photographs. Include brief, numbered captions keyed to the photographs. Place a corresponding number on the lower left corner, reverse side of the photographs. Also, be sure to include the *source* of the photograph. *Program Manager* publishes no photos from outside the Department of Defense without express permission. Photocopies of photographs are not acceptable.

With the increase in digital media capabilities, authors can now provide digital files of photos/illustrations. These files should be placed on our server via FTP (File Transfer Protocol). (Our author guidelines at *http://www.dau.mil/pubs/pubs-main.htm* contain complete instructions on transferring these files.) Note that they must meet the following publication standards set for *Program Manager*: color and greyscale (if possible); EPS files generated from Illustrator (preferred) or Corel Draw (if in another format, provide program format as well as EPS file); TIFF files with a resolution of 300 pixels per inch; or other files in original program format (i.e., Powerpoint).

Biographical Sketch

Include a short biographical sketch of the author(s)—about 25 words—including current position and educational background.

Clearance

All articles written by authors employed by or on contract with the U.S. Government must be cleared by the author's public affairs or security office prior to submission. In addition, each author must certify that the article is a "Work of the U.S. Government." This form is found at the end of the PM Author Guidance. Click on "Copyright Forms" and print the last page only, sign, and submit with the article. Since all articles appearing in *Program Manager* are in the public domain and posted to the DAU Web site, no copyrighted articles will be accepted. This is in keeping with DAU's policy of widest dissemination of its published products.

Submission Dates

Issue	Author's Deadline
January-February	1 December
March-April	1 February
May-June	1 April
July-August	1 June
September-October	1 August
November-December	1 October

Submission Procedures

Articles (in MS Word) may be submitted via e-mail to *collie.Johnson@dau.mil* or via U.S. mail to: DAU PRESS, ATTN C. JOHNSON, 9820 BELVOIR RD, SUITE 3, FORT BELVOIR VA 22060-5565. For photos/illustrations accompanying your article, send us the original photos or follow the guidance under "Photos and Illustrations"—opposite column. All submissions must include the author's name, mailing address, office phone number (DSN and commercial), and fax number.

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